

SEQUENCE LISTING



175

<110> HYBRIGENICS

<120> SID nucleic acids and polypeptides selected from a pathogenic strain of the hepatitis C virus and applications thereof

<130> B4809A - JAZ

<140> U.S. 09/921,397

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<150> EP. 00402225.7

<151> 2000-08-03

<160> 156

<170> PatentIn Ver. 2.1

<210> 1

<211> 50

<212> PRT

<213> Hepatitis C virus

<400> 1

Leu Leu Pro Arg Arg Gly Pro Arg Leu Gly Val Arg Ala Thr Arg Lys  
1 5 10 15

Thr Ser Glu Arg Ser Gln Pro Arg Gly Arg Arg Gln Pro Ile Pro Lys  
20 25 30

Ala Arg Arg Pro Glu Gly Arg Thr Trp Ala Gln Pro Gly Tyr Pro Trp  
35 40 45

Pro Leu

50

<210> 2

<211> 35

<212> PRT

<213> Hepatitis C virus

<400> 2

Gly Arg Gly Lys Pro Gly Ile Tyr Arg Phe Val Ala Pro Gly Glu Arg  
1 5 10 15

Pro Ser Gly Met Phe Asp Ser Ser Val Leu Cys Glu Cys Tyr Asp Ala  
20 25 30

Gly Cys Ala

35

<210> 3

<211> 77

<212> PRT

<213> Hepatitis C virus

<400> 3

Asn Thr Asn Arg Arg Pro Gln Asp Val Lys Phe Pro Gly Gly Gln  
1 5 10 15

Ile Val Gly Gly Val Tyr Leu Leu Pro Arg Arg Gly Pro Arg Leu Gly  
20 25 30

Val Arg Ala Thr Arg Lys Thr Ser Glu Arg Ser Gln Pro Arg Gly Arg  
35 40 45

Arg Gln Pro Ile Pro Lys Ala Arg Arg Pro Glu Gly Arg Thr Trp Ala  
50 55 60

Gln Pro Gly Tyr Pro Trp Pro Leu Tyr Gly Asn Glu Gly  
65 70 75

<210> 4

<211> 37

<212> PRT

<213> Hepatitis C virus

<400> 4

Pro Ser Pro Val Val Val Gly Thr Thr Asp Arg Ser Gly Ala Pro Thr  
1 5 10 15

Tyr Ser Trp Gly Ala Asn Asp Thr Asp Val Phe Val Leu Asn Asn Thr  
20 25 30

Arg Pro Pro Leu Gly  
35

<210> 5

<211> 150

<212> PRT

<213> Hepatitis C virus

<400> 5

Ser Arg Thr Gln Arg Arg Gly Arg Thr Gly Arg Gly Lys Pro Gly Ile  
1 5 10 15

Tyr Arg Phe Val Ala Pro Gly Glu Arg Pro Ser Gly Met Phe Asp Ser  
20 25 30

Ser Val Leu Cys Glu Cys Tyr Asp Ala Gly Cys Ala Trp Tyr Glu Leu  
35 40 45

Thr Pro Ala Glu Thr Thr Val Arg Leu Arg Ala Tyr Met Asn Thr Pro  
50 55 60

Gly Leu Pro Val Cys Gln Asp His Leu Glu Phe Trp Glu Gly Val Phe  
65 70 75 80

Thr Gly Leu Thr His Ile Asp Ala His Phe Leu Ser Gln Thr Lys Gln  
85 90 95

Ser Gly Glu Asn Phe Pro Tyr Leu Val Ala Tyr Gln Ala Thr Val Cys

100

105

110

Ala Arg Ala Gln Ala Pro Pro Pro Ser Trp Asp Gln Met Trp Lys Cys  
115 120 125

Leu Ile Arg Leu Lys Pro Thr Leu His Gly Pro Thr Pro Leu Leu Tyr  
130 135 140

Arg Leu Gly Ala Val Gln  
145 150

<210> 6

<211> 28

<212> PRT

<213> Hepatitis C virus

<400> 6

Pro Ser Pro Val Val Val Gly Thr Thr Asp Arg Ser Gly Ala Pro Thr  
1 5 10 15

Tyr Ser Trp Gly Ala Asn Asp Thr Asp Val Phe Val  
20 25

<210> 7

<211> 26

<212> PRT

<213> Hepatitis C virus

<400> 7

Pro Pro Arg Pro Cys Gly Ile Val Pro Ala Lys Ser Val Cys Gly Pro  
1 5 10 15

Val Tyr Cys Phe Thr Pro Ser Pro Val Val  
20 25

<210> 8

<211> 54

<212> PRT

<213> Hepatitis C virus

<400> 8

Cys Val Val Ile Val Gly Arg Ile Val Leu Ser Gly Lys Pro Ala Ile  
1 5 10 15

Ile Pro Asp Arg Glu Val Leu Tyr Gln Glu Phe Asp Glu Met Glu Glu  
20 25 30

Cys Ser Gln His Leu Pro Tyr Ile Glu Gln Gly Met Met Leu Ala Glu  
35 40 45

Gln Phe Lys Gln Lys Ala  
50

<210> 9  
<211> 40  
<212> PRT  
<213> Hepatitis C virus.

<400> 9  
Gly Asp Phe Asp Ser Val Ile Asp Cys Asn Thr Cys Val Thr Gln Thr  
1 5 10 15  
Val Asp Phe Ser Leu Asp Pro Thr Phe Thr Ile Glu Thr Thr Thr Leu  
20 25 30  
Pro Gln Asp Ala Val Ser Arg Thr  
35 40

<210> 10  
<211> 28  
<212> PRT  
<213> Hepatitis C virus

<400> 10  
Glu Arg Pro Ser Gly Met Phe Asp Ser Ser Val Leu Cys Glu Cys Tyr  
1 5 10 15  
Asp Ala Gly Cys Ala Trp Tyr Glu Leu Thr Pro Ala  
20 25

<210> 11  
<211> 27  
<212> PRT  
<213> Hepatitis C virus

<400> 11  
Arg Gly Lys Pro Gly Ile Tyr Arg Phe Val Ala Pro Gly Glu Arg Pro  
1 5 10 15  
Ser Gly Met Phe Asp Ser Ser Val Leu Cys Glu  
20 25

<210> 12  
<211> 42  
<212> PRT  
<213> Hepatitis C virus

<400> 12  
Leu Glu Asp Ser Val Thr Pro Ile Asp Thr Thr Ile Met Ala Lys Asn  
1 5 10 15  
Glu Val Phe Cys Val Gln Pro Glu Lys Gly Gly Arg Lys Pro Ala Arg  
20 25 30  
Leu Ile Val Phe Pro Asp Leu Gly Val Arg  
35 40

<210> 13  
<211> 28  
<212> PRT  
<213> Hepatitis C virus

<400> 13  
Pro Thr Gly Ser Gly Lys Ser Thr Lys Val Pro Ala Ala Tyr Ala Ala  
1 5 10 15  
Gln Gly Tyr Lys Val Leu Val Leu Asn Pro Ser Val  
20 25

<210> 14  
<211> 33  
<212> PRT  
<213> Hepatitis C virus

<400> 14  
Glu Arg Pro Tyr Cys Trp His Tyr Pro Pro Arg Pro Cys Gly Ile Val  
1 5 10 15  
Pro Ala Lys Ser Val Cys Gly Pro Val Tyr Cys Phe Thr Pro Ser Pro  
20 25 30

Val

<210> 15  
<211> 31  
<212> PRT  
<213> Hepatitis C virus

<400> 15  
Pro Ser Pro Val Val Val Gly Thr Thr Asp Arg Ser Gly Ala Pro Thr  
1 5 10 15  
Tyr Ser Trp Gly Ala Asn Asp Thr Asp Val Phe Val Leu Asn Asn  
20 25 30

<210> 16  
<211> 77  
<212> PRT  
<213> Hepatitis C virus

<400> 16  
Ala Gly Ala Leu Val Ala Phe Lys Ile Met Ser Gly Glu Val Pro Ser  
1 5 10 15  
Thr Glu Asp Leu Val Asn Leu Leu Pro Ala Ile Leu Ser Pro Gly Ala  
20 25 30  
Leu Val Val Gly Val Val Cys Ala Ala Ile Leu Arg Arg His Val Gly  
35 40 45

Pro Gly Glu Gly Ala Val Gln Trp Met Asn Arg Leu Ile Ala Phe Ala  
50 55 60

Ser Arg Gly Asn His Val Ser Pro Thr His Tyr Val Pro  
65 70 75

<210> 17  
<211> 147  
<212> PRT  
<213> Hepatitis C virus

<400> 17  
Glu Val Gln Ile Val Ser Thr Ala Thr Gln Thr Phe Leu Ala Thr Cys  
1 5 10 15

Ile Asn Gly Val Cys Trp Thr Val Tyr His Gly Ala Gly Thr Arg Thr  
20 25 30

Ile Ala Ser Pro Lys Gly Pro Val Ile Gln Met Tyr Thr Asn Val Asp  
35 40 45

Gln Asp Leu Val Gly Trp Pro Ala Pro Gln Gly Ser Arg Ser Leu Thr  
50 55 60

Pro Cys Thr Cys Gly Ser Ser Asp Leu Tyr Leu Val Thr Arg His Ala  
65 70 75 80

Asp Val Ile Pro Val Arg Arg Arg Gly Asp Ser Arg Gly Ser Leu Leu  
85 90 95

Ser Pro Arg Pro Ile Ser Tyr Leu Lys Gly Ser Ser Gly Gly Pro Leu  
100 105 110

Leu Cys Pro Ala Gly His Ala Val Gly Leu Phe Arg Ala Ala Val Cys  
115 120 125

Thr Arg Gly Val Ala Lys Ala Val Asp Phe Ile Pro Val Glu Asn Leu  
130 135 140

Gly Thr Thr  
145

<210> 18  
<211> 36  
<212> PRT  
<213> Hepatitis C virus

<400> 18  
Val Thr Gln Leu Leu Arg Arg Leu His Gln Trp Ile Ser Ser Glu Cys  
1 5 10 15

Thr Thr Pro Cys Ser Gly Ser Trp Leu Arg Asp Ile Trp Asp Trp Ile  
20 25 30

Cys Glu Val Leu  
35

<210> 19  
<211> 28  
<212> PRT  
<213> Hepatitis C virus

<400> 19  
Val Cys Gly Pro Val Tyr Cys Phe Thr Pro Ser Pro Val Val Val Gly  
1 5 10 15  
Thr Thr Asp Arg Ser Gly Ala Pro Thr Tyr Ser Trp  
20 25

<210> 20  
<211> 45  
<212> PRT  
<213> Hepatitis C virus

<400> 20  
Pro Pro Leu Arg Ala Trp Arg His Arg Ala Arg Ser Val Arg Ala Arg  
1 5 10 15  
Leu Leu Ser Arg Gly Gly Arg Ala Ala Ile Cys Gly Lys Tyr Leu Phe  
20 25 30  
Asn Trp Ala Val Arg Thr Lys Leu Lys Leu Thr Pro Ile  
35 40 45

<210> 21  
<211> 86  
<212> PRT  
<213> Hepatitis C virus

<400> 21  
Thr Ala Phe Val Gly Ala Gly Leu Ala Gly Ala Ala Ile Gly Ser Val  
1 5 10 15  
Gly Leu Gly Lys Val Leu Val Asp Ile Leu Ala Gly Tyr Gly Ala Gly  
20 25 30  
Val Ala Gly Ala Leu Val Ala Phe Lys Ile Met Ser Gly Glu Val Pro  
35 40 45  
Ser Thr Glu Asp Leu Val Asn Leu Leu Pro Ala Ile Leu Ser Pro Gly  
50 55 60  
Ala Leu Val Val Gly Val Val Cys Ala Ala Ile Leu Arg Arg His Val  
65 70 75 80  
Gly Pro Gly Glu Gly Ala  
85

<210> 22  
<211> 43

<212> PRT  
<213> Hepatitis C virus

<400> 22  
Gly Ile Val Pro Ala Lys Ser Val Cys Gly Pro Val Tyr Cys Phe Thr  
1 5 10 15  
Pro Ser Pro Val Val Val Gly Thr Thr Asp Arg Ser Gly Ala Pro Thr  
20 25 30  
Tyr Ser Trp Gly Ala Asn Asp Thr Asp Val Phe  
35 40

<210> 23  
<211> 63  
<212> PRT  
<213> Hepatitis C virus

<400> 23  
Val Leu Val Asp Ile Leu Ala Gly Tyr Gly Ala Gly Val Ala Gly Ala  
1 5 10 15  
Leu Val Ala Phe Lys Ile Met Ser Gly Glu Val Pro Ser Thr Glu Asp  
20 25 30  
Leu Val Asn Leu Leu Pro Ala Ile Leu Ser Pro Gly Ala Leu Val Val  
35 40 45  
Gly Val Val Cys Ala Ala Ile Leu Arg Arg His Val Gly Pro Gly  
50 55 60

<210> 24  
<211> 29  
<212> PRT  
<213> Hepatitis C virus

<400> 24  
Glu Arg Pro Tyr Cys Trp His Tyr Pro Pro Arg Pro Cys Gly Ile Val  
1 5 10 15  
Pro Ala Lys Ser Val Cys Gly Pro Val Tyr Cys Phe Thr  
20 25

<210> 25  
<211> 76  
<212> PRT  
<213> Hepatitis C virus

<400> 25  
Arg Arg His Trp Thr Thr Gln Asp Cys Asn Cys Ser Ile Tyr Pro Gly  
1 5 10 15  
His Ile Thr Gly His Arg Met Ala Trp Asp Met Met Met Asn Trp Ser  
20 25 30

Pro Thr Ala Ala Leu Val Val Ala Gln Leu Leu Arg Ile Pro Gln Ala  
35 40 45

Ile Met Asp Met Ile Ala Gly Ala His Trp Gly Val Leu Ala Gly Ile  
50 55 60

Ala Tyr Phe Ser Met Val Gly Asn Trp Ala Lys Val  
65 70 75

<210> 26

<211> 37

<212> PRT

<213> Hepatitis C virus

<400> 26

Ala Ile Leu Ser Ser Leu Thr Val Thr Gln Leu Leu Arg Arg Leu His  
1 5 10 15

Gln Trp Ile Ser Ser Glu Cys Thr Thr Pro Cys Ser Gly Ser Trp Leu  
20 25 30

Arg Asp Ile Trp Asp  
35

<210> 27

<211> 47

<212> PRT

<213> Hepatitis C virus

<400> 27

Val Ser Arg Thr Gln Arg Arg Gly Arg Thr Gly Arg Gly Lys Pro Gly  
1 5 10 15

Ile Tyr Arg Phe Val Ala Pro Gly Glu Arg Pro Ser Gly Met Phe Asp  
20 25 30

Ser Ser Val Leu Cys Glu Cys Tyr Asp Ala Gly Cys Ala Trp Tyr  
35 40 45

<210> 28

<211> 53

<212> PRT

<213> Hepatitis C virus

<400> 28

Leu Pro Ala Pro Asn Tyr Lys Phe Ala Leu Trp Arg Val Ser Ala Glu  
1 5 10 15

Glu Tyr Val Glu Ile Arg Arg Val Gly Asp Phe His Tyr Val Ser Gly  
20 25 30

Met Thr Thr Asp Asn Leu Lys Cys Pro Cys Gln Ile Pro Ser Pro Glu  
35 40 45

Phe Phe Thr Glu Leu

<210> 29  
<211> 112  
<212> PRT  
<213> Hepatitis C virus

<400> 29  
Gly Glu Ile Pro Phe Tyr Gly Lys Ala Ile Pro Leu Glu Val Ile Lys  
1 5 10 15  
Gly Gly Arg His Leu Ile Phe Cys His Ser Lys Lys Lys Cys Asp Glu  
20 25 30  
Leu Ala Ala Lys Leu Val Ala Leu Gly Ile Asn Ala Val Ala Tyr Tyr  
35 40 45  
Arg Gly Leu Asp Val Ser Val Ile Pro Thr Ser Gly Asp Val Val Val  
50 55 60  
Val Ser Thr Asp Ala Leu Met Thr Gly Phe Thr Gly Asp Phe Asp Ser  
65 70 75 80  
Val Ile Asp Cys Asn Thr Cys Val Thr Gln Thr Val Asp Phe Ser Leu  
85 90 95  
Asp Pro Thr Phe Thr Ile Glu Thr Thr Leu Pro Gln Asp Ala Val  
100 105 110

<210> 30  
<211> 54  
<212> PRT  
<213> Hepatitis C virus

<400> 30  
Val Cys Ala Ala Ile Leu Arg Arg His Val Gly Pro Gly Glu Gly Ala  
1 5 10 15  
Val Gln Trp Met Asn Arg Leu Ile Ala Phe Ala Ser Arg Gly Asn His  
20 25 30  
Val Ser Pro Thr His Tyr Val Pro Glu Ser Asp Ala Ala Ala Arg Val  
35 40 45  
Thr Ala Ile Leu Ser Ser  
50

<210> 31  
<211> 102  
<212> PRT  
<213> Hepatitis C virus

<400> 31

Ala Ile Lys Ser Leu Thr Glu Arg Leu Tyr Val Gly Gly Pro Leu Thr  
1 5 10 15

Asn Ser Arg Gly Glu Asn Cys Gly Tyr Arg Arg Cys Arg Ala Ser Gly  
20 25 30

Val Leu Thr Thr Ser Cys Gly Asn Thr Leu Thr Cys Tyr Ile Lys Ala  
35 40 45

Arg Ala Ala Cys Arg Ala Ala Gly Leu Gln Asp Cys Thr Met Leu Val  
50 55 60

Cys Gly Asp Asp Leu Val Val Ile Cys Glu Ser Ala Gly Val Gln Glu  
65 70 75 80

Asp Ala Ala Ser Leu Arg Ala Phe Thr Glu Ala Met Thr Arg Tyr Ser  
85 90 95

Ala Pro Pro Gly Asp Pro  
100

<210> 32

<211> 79

<212> PRT

<213> Hepatitis C virus

<400> 32

Leu Gln Val Leu Asp Ser His Tyr Gln Asp Val Leu Lys Glu Val Lys  
1 5 10 15

Ala Ala Ala Ser Lys Val Lys Ala Asn Leu Leu Ser Val Glu Glu Ala  
20 25 30

Cys Ser Leu Thr Pro Pro His Ser Ala Lys Ser Lys Phe Gly Tyr Gly  
35 40 45

Ala Lys Asp Val Arg Cys His Ala Arg Lys Ala Val Ala His Ile Asn  
50 55 60

Ser Val Trp Lys Asp Leu Leu Glu Asp Ser Val Thr Pro Ile Asp  
65 70 75

<210> 33

<211> 61

<212> PRT

<213> Hepatitis C virus

<400> 33

Thr Gln Thr Val Asp Phe Ser Leu Asp Pro Thr Phe Thr Ile Glu Thr  
1 5 10 15

Thr Thr Leu Pro Gln Asp Ala Val Ser Arg Thr Gln Arg Arg Gly Arg  
20 25 30

Thr Gly Arg Gly Lys Pro Gly Ile Tyr Arg Phe Val Ala Pro Gly Glu  
35 40 45

Arg Pro Ser Gly Met Phe Asp Ser Ser Val Leu Cys Glu  
50 55 60

<210> 34  
<211> 77  
<212> PRT  
<213> Hepatitis C virus

<400> 34  
Val Leu Asp Ser His Tyr Gln Asp Val Leu Lys Glu Val Lys Ala Ala  
1 5 10 15

Ala Ser Lys Val Lys Ala Asn Leu Leu Ser Val Glu Glu Ala Cys Ser  
20 25 30

Leu Thr Pro Pro His Ser Ala Lys Ser Lys Phe Gly Tyr Gly Ala Lys  
35 40 45

Asp Val Arg Cys His Ala Arg Lys Ala Val Ala His Ile Asn Ser Val  
50 55 60

Trp Lys Asp Leu Leu Glu Asp Ser Val Thr Pro Ile Asp  
65 70 75

<210> 35  
<211> 26  
<212> PRT  
<213> Hepatitis C virus

<400> 35  
Tyr Pro Pro Arg Pro Cys Gly Ile Val Pro Ala Lys Ser Val Cys Gly  
1 5 10 15

Pro Val Tyr Cys Phe Thr Pro Ser Pro Val  
20 25

<210> 36  
<211> 37  
<212> PRT  
<213> Hepatitis C virus

<400> 36  
Pro Ile Ser Tyr Ala Asn Gly Ser Gly Leu Asp Glu Arg Pro Tyr Cys  
1 5 10 15

Trp His Tyr Pro Pro Arg Pro Cys Gly Ile Val Pro Ala Lys Ser Val  
20 25 30

Cys Gly Pro Val Tyr  
35

<210> 37

<211> 35  
<212> PRT  
<213> Hepatitis C virus

<400> 37  
Thr Val Thr Gln Leu Leu Arg Arg Leu His Gln Trp Ile Ser Ser Glu  
1 5 10 15

Cys Thr Thr Pro Cys Ser Gly Ser Trp Leu Arg Asp Ile Trp Asp Trp  
20 25 30

Ile Cys Glu  
35

<210> 38  
<211> 25  
<212> PRT  
<213> Hepatitis C virus

<400> 38  
Leu Leu Arg Arg Leu His Gln Trp Ile Ser Ser Glu Cys Thr Thr Pro  
1 5 10 15

Cys Ser Gly Ser Trp Leu Arg Asp Ile  
20 25

<210> 39  
<211> 152  
<212> DNA  
<213> Hepatitis C virus

<400> 39  
cttgggccg cgcaaggccc ctagattggg tggcgccgc acgaggaaga cttccgagcg 60  
gtcgcaacct cgaggttagac gtcagcctat ccccaaggca cgtcgccccg agggcaggac 120  
ctgggctcag cccgggtacc cttggccccct ct 152

<210> 40  
<211> 106  
<212> DNA  
<213> Hepatitis C virus

<400> 40  
tggcaggggg aagccaggca tctatagatt tggcgccacg ggggagcgcc cttccggcat 60  
gttcgactcg tccgtcctct gtgagtgcta tgacgcgggc tgtgct 106

<210> 41  
<211> 234  
<212> DNA  
<213> Hepatitis C virus

<400> 41  
taacaccaac cgtcgcccc acgacgtcaa gttccgggt ggccggtcaga tcgttgtgg 60  
agtttacttg ttggccgcga gggccctag attgggtgtg cgccgcacgaa ggaagacttc 120  
cgagcggtcg caacctcgag gttagacgtca gcctatcccc aaggcacgtc ggccccgaggg 180  
caggacacctgg gtcagcccc ggtacccttg gcccccttat ggcaatgagg gttg 234

<210> 42  
<211> 114  
<212> DNA  
<213> Hepatitis C virus

<400> 42  
tccccagcccc gtgggtggtgg gaacgaccga caggtcgggc gcgcctacct acagctgggg 60  
tgcaaatgt acggatgtct tcgtccttaa caacaccagg ccaccgctgg gcaa 114

<210> 43  
<211> 453  
<212> DNA  
<213> Hepatitis C virus

<400> 43  
ctccaggact caacgccccc gcaggactgg cagggggaaag ccaggcatct atagatttgt 60  
ggcacccgggg gagcgccccct cccgcattttt cgactcgatcc gtcctctgtg agtgcata 120  
cgccggctgt gtttttatg agtcacgccc cggccggact acagtttaggc tacgagcgta 180  
catgaacacc cccggggcttc cccgtgtgcca ggaccatctt gaattttggg agggcgctt 240  
tacgggcctc actcatatag atgcccactt tttatccctt acaaaggcaga gtggggagaa 300  
ctttcccttac ctggtagcgt accaagccac cgtgtgcgtt agggctcaag cccctcccc 360  
atcggtggac cagatgttgg aagtgttttgcgtt ccgccttaaa cccaccctcc atgggccaac 420  
accctgtcta tacagactgg gcgctgttca gaa 453

<210> 44  
<211> 85  
<212> DNA  
<213> Hepatitis C virus

<400> 44  
tccccagcccc gtgggtggtgg gaacgaccga caggtcgggc gcgcctacct acagctgggg 60  
tgcaaatgt acggatgtct tcgtc 85

<210> 45  
<211> 80  
<212> DNA  
<213> Hepatitis C virus

<400> 45  
ccctccaaga ctttgcggca ttgtgccccgc aaagagcggtg tttttttttttt 60  
caactccacgc cccgtgttgg 80

<210> 46  
<211> 165  
<212> DNA  
<213> Hepatitis C virus

<400> 46  
ctgcgtggtc atagtggca ggatcgatctt gtcggggaaag cccggcaattt tacctgacag 60  
ggaggttctc taccaggagt tcgtatggat ggaagagtgc ttcagactt taccgtatcat 120  
cgagcaaggg atgtatgttcg ctgagcgtttt caagcagaag gcctt 165

<210> 47  
<211> 123

<212> DNA  
<213> Hepatitis C virus

<400> 47  
cggcgacttc gactctgtga tagactgcaa cacgtgtgc actcagacag tcgatttcag 60  
ccttgaccct acctttacca ttgagacaac cacgctcccc caggatgctg tctccaggac 120  
tca 123

<210> 48  
<211> 87  
<212> DNA  
<213> Hepatitis C virus

<400> 48  
ggagcgcccc tccggcatgt tcgactcgtc cgtcctctgt gagtgctatg acgcgggctg 60  
tgcttggtat gagctcacgc ccggcga 87

<210> 49  
<211> 84  
<212> DNA  
<213> Hepatitis C virus

<400> 49  
caggggaag ccaggcatct atagatttgt ggcaccgggg gagcgcccct ccggcatgtt 60  
cactcggtcc gtccctgtg agt 84

<210> 50  
<211> 128  
<212> DNA  
<213> Hepatitis C virus

<400> 50  
tcttggaaagac agtgtaacac caatagacac taccatcatg gccaagaacg aggtttctg 60  
cgttcagcct gagaaggggg gtcgttaagcc agtcgtctc atcgtgttcc ccgacctggg 120  
cgtgcgcg 128

<210> 51  
<211> 85  
<212> DNA  
<213> Hepatitis C virus

<400> 51  
tcccacccggc agcggttaaga gcaccaaggc cccggctgctg tacgcagccc agggctacaa 60  
ggtgttggtg ctcaaccctt ctgtt 85

<210> 52  
<211> 102  
<212> DNA  
<213> Hepatitis C virus

<400> 52  
cgaacgcccc tactgctggc actaccctcc aagacccttgt ggcattgtgc ccgcaaagag 60  
cgtgtgtggc ccggtatatt gttcactcc cagccccgtg gt 102

<210> 53

<211> 95  
<212> DNA  
<213> Hepatitis C virus

<400> 53  
tcccagcccc gtgggtggtaa gaacgaccga caggtcgggc ggcctacct acagctgggg 60  
tgcaaatgtt acggatgtct tcgtccttaa caaca 95

<210> 54  
<211> 234  
<212> DNA  
<213> Hepatitis C virus

<400> 54  
ggcgaggact ctgttagcat tcaagatcat gagcggtgag gtccctcca cggaggacct 60  
ggtaaatctg ctgcccaca tcctctcgcc tggaccctt gtatcggtg tggctcgcc 120  
agcaatactg cgccggcacg ttggcccgaa cgaggggca gtcaatgga tgaaccggct 180  
aatagccttc gcctcccgaa ggaaccatgt ttccccacg cactacgtgc cgga 234

<210> 55  
<211> 442  
<212> DNA  
<213> Hepatitis C virus

<400> 55  
tgaggtccag atcgtgtcaa ctgttaccca aactttcctg gcaacgtgca tcaatgggt 60  
atgtggact gtctaccacg gggccggaaac gaggaccatc gcatcaccctt agggtcctgt 120  
catccagatg tataccaatg tggaccaaga cttgtgggc tggcccgctc ctcaaggttc 180  
ccgctcattt acaccctgtt cctgcggctc ctcggacctt tacctgttca cgagggcacgc 240  
cgatgtcattt cccgtgcgcc ggcgaggtga tagcaggggt agcctgtttt cgcccccggcc 300  
catttcctac ttgaaaggct cctcgggggg tccgctgttgc tgccccgcgg gacacggcgt 360  
gggcctattt agggccgcgg tgcaccccg tggagtggct aaagcgggtgg acttatccc 420  
tgtggagaac ctagggacaa cc 442

<210> 56  
<211> 111  
<212> DNA  
<213> Hepatitis C virus

<400> 56  
tgaacccag ctccctgaggc gactgcatca gtggataaagc tcggagtgta ccactccatg 60  
ctccgggttcc tggctaaggaa acatctggaa ctggatatgc gaggtgctga g 111

<210> 57  
<211> 87  
<212> DNA  
<213> Hepatitis C virus

<400> 57  
cgtgtgtggc ccggtatatt gcttcactcc cagccccgtg gtgggtggaa cgaccgacag 60  
gtcgggcgcg cctacctaca gctgggg 87

<210> 58  
<211> 137  
<212> DNA  
<213> Hepatitis C virus

<400> 58  
cccgcccttg cgagcttgg aacaccggc ccggagcgtc cgcgctaggc ttctgtccag 60  
aggaggcagg gctgccatat gtggcaagta cctttcaac tggcagtaa gaacaaagct 120  
caaactcaact ccaatag 137

<210> 59  
<211> 259  
<212> DNA  
<213> Hepatitis C virus

<400> 59  
tactgcctt gtgggtgctg gccttagctgg cgccgcacatc ggcagcggtt gactgggaa 60  
ggtcctcggt gacattcttg cagggtatgg cgccggcggt gcccggagctc ttgttagcatt 120  
caagatcatg agcggtgagg tcccctccac ggaggacctg gtaatctgc tgcccccat 180  
cctctcgct ggagcccttg tagtcggtgt ggtctgcgca gcaatactgc gccggcacgt 240  
tggccggc gagggggca 259

<210> 60  
<211> 130  
<212> DNA  
<213> Hepatitis C virus

<400> 60  
tggcattgtg cccgcaaaga gcgtgtgtgg cccggatatat tgcttcactc ccagccccgt 60  
ggtgtggga acgaccgaca ggtcgccgcgc gcctacctac agctgggtg caaatgatac 120  
ggatgtcttc 130

<210> 61  
<211> 191  
<212> DNA  
<213> Hepatitis C virus

<400> 61  
ggtcctcggt gacattcttg cagggtatgg cgccggcggt gcccggagctc ttgttagcatt 60  
caagatcatg agcggtgagg tcccctccac ggaggacctg gtaatctgc tgcccccat 120  
cctctcgct ggagcccttg tagtcggtgt ggtctgcgca gcaatactgc gccggcacgt 180  
tggccggc g 191

<210> 62  
<211> 89  
<212> DNA  
<213> Hepatitis C virus

<400> 62  
cgaacgcccc tactgctggc actaccctcc aagaccttgtt ggcattgtgc ccgcaaagag 60  
cgtgtgtggc ccgttatatt gcttcactc 89

<210> 63  
<211> 230  
<212> DNA  
<213> Hepatitis C virus

<400> 63  
cagcgccac tggacgacgc aagactgcaa ttgttctatc tatcccgcc atataacggg 60  
tcatcgcatg gcatggata tggatgtgaa ctggccctt acggcagegt tggtggtgc 120

tcagctgctc cgatatccac aagccatcat ggacatgatc gctggtgctc actggggagt 180  
cctggcgccc atagcgatt tctccatggt ggggaactgg gcgaaaggccc 230

<210> 64  
<211> 113  
<212> DNA  
<213> Hepatitis C virus

<400> 64  
tgccatactc agcagcctca ctgtaaacca gtcctgagg cgactgcattc agtggataag 60  
ctcgagggt accactccat gtcgggttc ctggctaagg gacatctggg act 113

<210> 65  
<211> 142  
<212> DNA  
<213> Hepatitis C virus

<400> 65  
tgtctccagg actcaacgcc ggggcaggac tggcaggggg aagccaggca tctatagatt 60  
tgtggcaccc ggggagcgc cctccggcat gttcgactcg tccgtcctct gtgagtgcta 120  
tgacgcgggc tgtgcttggt at 142

<210> 66  
<211> 162  
<212> DNA  
<213> Hepatitis C virus

<400> 66  
ccttcctgcg ccgaactata agttcgccgt gtggaggggtg tctgcagagg aatacgtgga 60  
gataaggcgg gtggggact tccactacgt atcgggtatg actactgaca atcttaatg 120  
cccggtccag atccccatcgc ccgaattttt cacagaattt ga 162

<210> 67  
<211> 337  
<212> DNA  
<213> Hepatitis C virus

<400> 67  
cgagagatc cccttttacg gcaaggctat cccccctcgag gtgatcaagg gggaaagaca 60  
tctcatcttc tgccactcaa agaagaagtg cgacgagtc gccgcgaagc tggtcgcatt 120  
ggcataat gccgtggcct actaccgcgg tcttgacgtg tctgtcattcc cgaccagcgg 180  
cgatgttgc tcgtgtcga ccgtatctt catgactggc ttaccggcg acttcgactc 240  
tgtatagac tgcaaacacgt gtgtcactca gacagtcgtt ttcagccttg accctacattt 300  
taccatttag acaaccacgc tccccccagga tgctgtc 337

<210> 68  
<211> 163  
<212> DNA  
<213> Hepatitis C virus

<400> 68  
ggctctgcga gcaataactgc gccggcacgt tggccggggc gagggggcag tgcaatggat 60  
gaaccggcta atagccttcg cctccgggg gaaccatgtt tccccccacgc actacgtgcc 120  
ggagagcgtt gcagccgccc gcttcactgc cataactcagc agc 163

<210> 69  
<211> 309  
<212> DNA  
<213> Hepatitis C virus

<400> 69  
ggccatcaag tccctcaactg agaggcttta tggtggggc cctttacca attcaagggg 60  
ggaaaaactgc ggctaccgca ggtgccgcg gageggcgta ctgacaacta gctgtggtaa 120  
caccctcaact tgctacatca aggccccggc agcctgtcga gccgcagggc tccaggactg 180  
caccatgctc gtgtgtggcg acgacttagt cgttatctgt gaaagtgcgg gggcccg 240  
ggacgcggcg agcctgagag cttcacgga ggctatgacc aggtactccg ccccccccg 300  
ggacccccc 309

<210> 70  
<211> 240  
<212> DNA  
<213> Hepatitis C virus

<400> 70  
actgcaagtt ctggacagcc attaccagga cgtgctcaag gaggtcaaag cagccgcgtc 60  
aaaagtgaag gctaacttgc tatccgtaga ggaagcttgc agcctgacgc ccccacattc 120  
agccaaatcc aagtttggtat gggggcaaa agacgtccgt tgccatgcca gaaaggccgt 180  
agcccacatc aactccgtgt gaaagacct tctgaaagac agtgtaaacac caatagacac 240

<210> 71  
<211> 184  
<212> DNA  
<213> Hepatitis C virus

<400> 71  
cactcagaca gtcgatttca gccttgaccc taccttacc attgagacaa ccacgctccc 60  
ccaggatgtc gtctccagga ctcAACGCCG gggcaggact ggcaggggga agccaggcat 120  
ctatacgattt gtggcaccgg gggagcgcctt ccggcgtatg ttgcactcgt ccgtcctctg 180  
tgag 184

<210> 72  
<211> 234  
<212> DNA  
<213> Hepatitis C virus

<400> 72  
agttctggac agccatttacc agacgtgtc caaggaggc aaagcagcgg cgtcaaaagt 60  
gaaggctaac ttgctatccg tagaggaagc ttgcagccctg acgccccac attcagccaa 120  
atccaaatggg ggctatgggg caaaagacgt ccgttccat gccagaaagg ccgtagccca 180  
catcaactcc gtgtggaaag accttctgga agacagtgtaa acaccaatag acac 234

<210> 73  
<211> 80  
<212> DNA  
<213> Hepatitis C virus

<400> 73  
ctaccctcca agaccttgcg gcattgtgcc cgcaaagagc gtgtgtggcc cggtatattg 60  
cttcactccc agccccgtgg 80

<210> 74

<211> 112  
<212> DNA  
<213> Hepatitis C virus

<400> 74  
tcctatcagt tatgccaacg gaagcggcct cgacgaacgc ccctactgct ggcactaccc 60  
tccaagacct tgtggcattg tgcccgcaaa gagcgtgtgt ggcccggtat at 112

<210> 75  
<211> 107  
<212> DNA  
<213> Hepatitis C virus

<400> 75  
cactgtaacc cagctcctga ggcgactgca tcagtggata agctcgagg gtaccactcc 60  
atgctccggt tcctggctaa gggacatctg ggactggata tgcgagg 107

<210> 76  
<211> 78  
<212> DNA  
<213> Hepatitis C virus

<400> 76  
gctcctgagg cgactgcattc agtggataag ctggaggat accactccat gctccggttc 60  
ctggctaagg gacatctg 78

<210> 77  
<211> 103  
<212> PRT  
<213> Hepatitis C virus

<400> 77  
Ala Cys Glu Cys Pro Gly Arg Ser Arg Arg Pro Cys Thr Met Ser Thr  
1 5 10 15

Asn Pro Lys Pro Gln Arg Lys Thr Lys Arg Asn Thr Asn Arg Arg Pro  
20 25 30

Gln Asp Val Lys Phe Pro Gly Gly Gln Ile Val Gly Gly Val Tyr  
35 40 45

Leu Leu Pro Arg Arg Gly Pro Arg Leu Gly Val Arg Ala Thr Arg Lys  
50 55 60 65

Thr Ser Glu Arg Ser Gln Pro Arg Gly Arg Arg Gln Pro Ile Pro Lys  
65 70 75 80

Ala Arg Arg Pro Glu Gly Arg Thr Trp Ala Gln Pro Gly Tyr Pro Trp  
85 90 95

Pro Leu Tyr Gly Asn Glu Gly  
100

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<210> 78  
<211> 113  
<212> PRT

<213> Hepatitis C virus

<400> 78

Met Ser Thr Asn Pro Lys Pro Gln Arg Lys Thr Lys Arg Asn Thr Asn  
1 5 10 15

Arg Arg Pro Gln Asp Val Lys Phe Pro Gly Gly Gln Ile Val Gly  
20 25 30

Gly Val Tyr Leu Leu Pro Arg Arg Gly Pro Arg Leu Gly Val Arg Ala  
35 40 45

Thr Arg Lys Thr Ser Glu Arg Ser Gln Pro Arg Gly Arg Arg Gln Pro  
50 55 60

Ile Pro Lys Ala Arg Arg Pro Glu Gly Arg Thr Trp Ala Gln Pro Gly  
65 70 75 80

Tyr Pro Trp Pro Leu Tyr Gly Asn Glu Gly Cys Gly Trp Ala Gly Trp  
85 90 95

Leu Leu Ser Pro Arg Gly Ser Arg Pro Ser Trp Gly Pro Thr Asp Pro  
100 105 110

Arg

<210> 79

<211> 114

<212> PRT

<213> Hepatitis C virus

<400> 79

Ala Ile Leu His Thr Pro Gly Cys Val Pro Cys Val Arg Glu Gly Asn  
1 5 10 15

Ala Ser Arg Cys Trp Val Ala Val Thr Pro Thr Val Ala Thr Arg Asp  
20 25 30

Gly Lys Leu Pro Thr Thr Gln Leu Arg Arg His Ile Asp Leu Leu Val  
35 40 45

Gly Ser Ala Thr Leu Cys Ser Ala Leu Tyr Val Gly Asp Leu Cys Gly  
50 55 60

Ser Val Phe Leu Val Gly Gln Leu Phe Thr Phe Ser Pro Arg Arg His  
65 70 75 80

Trp Thr Thr Gln Asp Cys Asn Cys Ser Ile Tyr Pro Gly His Ile Thr  
85 90 95

Gly His Arg Met Ala Trp Asp Met Met Met Asn Trp Ser Pro Thr Ala  
100 105 110

Ala Leu

<210> 80  
<211> 91  
<212> PRT  
<213> Hepatitis C virus

<400> 80  
Gly Val Asp Ala Glu Thr His Val Thr Gly Gly Asn Ala Gly Arg Thr  
1 5 10 15  
Thr Ala Gly Leu Val Gly Leu Leu Thr Pro Gly Ala Lys Gln Asn Ile  
20 25 30  
Gln Leu Ile Asn Thr Asn Gly Ser Trp His Ile Asn Ser Thr Ala Leu  
35 40 45  
Asn Cys Asn Glu Ser Leu Asn Thr Gly Trp Leu Ala Gly Leu Phe Tyr  
50 55 60  
Gln His Lys Phe Asn Ser Ser Gly Cys Pro Glu Arg Leu Ala Ser Cys  
65 70 75 80  
Arg Arg Leu Thr Asp Phe Ala Gln Gly Trp Gly  
85 90

<210> 81  
<211> 176  
<212> PRT  
<213> Hepatitis C virus

<400> 81  
Trp Gly Pro Ile Ser Tyr Ala Asn Gly Ser Gly Leu Asp Glu Arg Pro  
1 5 10 15  
Tyr Cys Trp His Tyr Pro Pro Arg Pro Cys Gly Ile Val Pro Ala Lys  
20 25 30  
Ser Val Cys Gly Pro Val Tyr Cys Phe Thr Pro Ser Pro Val Val Val  
35 40 45  
Gly Thr Thr Asp Arg Ser Gly Ala Pro Thr Tyr Ser Trp Gly Ala Asn  
50 55 60  
Asp Thr Asp Val Phe Val Leu Asn Asn Thr Arg Pro Pro Leu Gly Asn  
65 70 75 80  
Trp Phe Gly Cys Thr Trp Met Asn Ser Thr Gly Phe Thr Lys Val Cys  
85 90 95  
Gly Ala Pro Pro Cys Val Ile Gly Gly Val Gly Asn Asn Thr Leu Leu  
100 105 110  
Cys Pro Thr Asp Cys Phe Arg Lys His Pro Glu Ala Thr Tyr Ser Arg  
115 120 125  
Cys Gly Ser Gly Pro Trp Ile Thr Pro Arg Cys Met Val Asp Tyr Pro  
130 135 140  
Tyr Arg Leu Trp His Tyr Pro Cys Thr Ile Asn Tyr Thr Ile Phe Lys  
145 150 155 160

Val Arg Met Tyr Val Gly Gly Val Glu His Arg Leu Glu Ala Ala Cys  
165 170 175

<210> 82

<211> 96

<212> PRT

<213> Hepatitis C virus

<400> 82

Trp His Tyr Pro Pro Arg Pro Cys Gly Ile Val Pro Ala Lys Ser Val  
1 5 10 15

Cys Gly Pro Val Tyr Cys Phe Thr Pro Ser Pro Val Val Val Gly Thr  
20 25 30

Thr Asp Arg Ser Gly Ala Pro Thr Tyr Ser Trp Gly Ala Asn Asp Thr  
35 40 45

Asp Val Phe Val Leu Asn Asn Thr Arg Pro Pro Leu Gly Asn Trp Phe  
50 55 60

Gly Cys Thr Trp Met Asn Ser Thr Gly Phe Thr Lys Val Cys Gly Ala  
65 70 75 80

Pro Pro Cys Val Ile Gly Gly Val Gly Asn Asn Thr Leu Leu Cys Pro  
85 90 95

<210> 83

<211> 278

<212> PRT

<213> Hepatitis C virus

<400> 83

Ala Ala Cys Gly Asp Ile Ile Asn Gly Leu Pro Val Ser Ala Arg Arg  
1 5 10 15

Gly Gln Glu Ile Leu Leu Gly Pro Ala Asp Gly Met Val Ser Lys Gly  
20 25 30

Trp Arg Leu Leu Ala Pro Ile Thr Ala Tyr Ala Gln Gln Thr Arg Gly  
35 40 45

Leu Leu Gly Cys Ile Ile Thr Ser Leu Thr Gly Arg Asp Lys Asn Gln  
50 55 60

Val Glu Gly Glu Val Gln Ile Val Ser Thr Ala Thr Gln Thr Phe Leu  
65 70 75 80

Ala Thr Cys Ile Asn Gly Val Cys Trp Thr Val Tyr His Gly Ala Gly  
85 90 95

Thr Arg Thr Ile Ala Ser Pro Lys Gly Pro Val Ile Gln Met Tyr Thr  
100 105 110

Asn Val Asp Gln Asp Leu Val Gly Trp Pro Ala Pro Gln Gly Ser Arg  
115 120 125

Ser Leu Thr Pro Cys Thr Cys Gly Ser Ser Asp Leu Tyr Leu Val Thr  
130 135 140

Arg His Ala Asp Val Ile Pro Val Arg Arg Gly Asp Ser Arg Gly  
145 150 155 160

Ser Leu Leu Ser Pro Arg Pro Ile Ser Tyr Leu Lys Gly Ser Ser Gly  
165 170 175

Gly Pro Leu Leu Cys Pro Ala Gly His Ala Val Gly Leu Phe Arg Ala  
180 185 190

Ala Val Cys Thr Arg Gly Val Ala Lys Ala Val Asp Phe Ile Pro Val  
195 200 205

Glu Asn Leu Gly Thr Thr Met Arg Ser Pro Val Phe Thr Asp Asn Ser  
210 215 220

Ser Pro Pro Ala Val Pro Gln Ser Phe Gln Val Ala His Leu His Ala  
225 230 235 240

Pro Thr Gly Ser Gly Lys Ser Thr Lys Val Pro Ala Ala Tyr Ala Ala  
245 250 255

Gln Gly Tyr Lys Val Leu Val Leu Asn Pro Ser Val Ala Ala Thr Leu  
260 265 270

Gly Phe Gly Ala Tyr Met  
275

<210> 84  
<211> 158  
<212> PRT  
<213> Hepatitis C virus

<400> 84  
Arg Arg Arg Gly Asp Ser Arg Gly Ser Leu Leu Ser Pro Arg Pro Ile  
1 5 10 15

Ser Tyr Leu Lys Gly Ser Ser Gly Gly Pro Leu Leu Cys Pro Ala Gly  
20 25 30

His Ala Val Gly Leu Phe Arg Ala Ala Val Cys Thr Arg Gly Val Ala  
35 40 45

Lys Ala Val Asp Phe Ile Pro Val Glu Asn Leu Gly Thr Thr Met Arg  
50 55 60

Ser Pro Val Phe Thr Asp Asn Ser Ser Pro Pro Ala Val Pro Gln Ser  
65 70 75 80

Phe Gln Val Ala His Leu His Ala Pro Thr Gly Ser Gly Lys Ser Thr

85

90

95

Lys Val Pro Ala Ala Tyr Ala Ala Gln Gly Tyr Lys Val Leu Val Leu  
 100 105 110

Asn Pro Ser Val Ala Ala Thr Leu Gly Phe Gly Ala Tyr Met Ser Lys  
 115 120 125

Ala His Gly Val Asp Pro Asn Ile Arg Thr Gly Val Arg Thr Ile Thr  
 130 135 140

Thr Gly Ser Pro Ile Thr Tyr Ser Thr Tyr Gly Lys Phe Leu  
 145 150 155

&lt;210&gt; 85

&lt;211&gt; 263

&lt;212&gt; PRT

&lt;213&gt; Hepatitis C virus

&lt;400&gt; 85

Asp Ser Arg Gly Ser Leu Leu Ser Pro Arg Pro Ile Ser Tyr Leu Lys  
 1 5 10 15

Gly Ser Ser Gly Gly Pro Leu Leu Cys Pro Ala Gly His Ala Val Gly  
 20 25 30

Leu Phe Arg Ala Ala Val Cys Thr Arg Gly Val Ala Lys Ala Val Asp  
 35 40 45

Phe Ile Pro Val Glu Asn Leu Gly Thr Thr Met Arg Ser Pro Val Phe  
 50 55 60

Thr Asp Asn Ser Ser Pro Pro Ala Val Pro Gln Ser Phe Gln Val Ala  
 65 70 75 80

His Leu His Ala Pro Thr Gly Ser Gly Lys Ser Thr Lys Val Pro Ala  
 85 90 95

Ala Tyr Ala Ala Gln Gly Tyr Lys Val Leu Val Leu Asn Pro Ser Val  
 100 105 110

Ala Ala Thr Leu Gly Phe Gly Ala Tyr Met Ser Lys Ala His Gly Val  
 115 120 125

Asp Pro Asn Ile Arg Thr Gly Val Arg Thr Ile Thr Thr Gly Ser Pro  
 130 135 140

Ile Thr Tyr Ser Thr Tyr Gly Lys Phe Leu Ala Asp Gly Gly Cys Ser  
 145 150 155 160

Gly Gly Ala Tyr Asp Ile Ile Ile Cys Asp Glu Cys His Ser Thr Asp  
 165 170 175

Ala Thr Ser Ile Leu Gly Ile Gly Thr Val Leu Asp Gln Ala Glu Thr  
 180 185 190

Ala Gly Ala Arg Leu Val Val Leu Ala Thr Pro Pro Gly Ser  
 195 200 205

Val Thr Val Ser His Pro Asn Ile Glu Glu Val Ala Leu Ser Thr Thr  
210 215 220

Gly Glu Ile Pro Phe Tyr Gly Lys Ala Ile Pro Leu Glu Val Ile Lys  
225 230 235 240

Gly Gly Arg His Leu Ile Phe Cys His Ser Lys Lys Lys Cys Asp Glu  
245 250 255

Leu Ala Ala Lys Leu Val Ala  
260

<210> 86  
<211> 194  
<212> PRT  
<213> Hepatitis C virus

<400> 86  
Asp Asn Ser Ser Pro Pro Ala Val Pro Gln Ser Phe Gln Val Ala His  
1 5 10 15

Leu His Ala Pro Thr Gly Ser Gly Lys Ser Thr Lys Val Pro Ala Ala  
20 25 30

Tyr Ala Ala Gln Gly Tyr Lys Val Leu Val Leu Asn Pro Ser Val Ala  
35 40 45

Ala Thr Leu Gly Phe Gly Ala Tyr Met Ser Lys Ala His Gly Val Asp  
50 55 60

Pro Asn Ile Arg Thr Gly Val Arg Thr Ile Thr Thr Gly Ser Pro Ile  
65 70 75 80

Thr Tyr Ser Thr Tyr Gly Lys Phe Leu Ala Asp Gly Gly Cys Ser Gly  
85 90 95

Gly Ala Tyr Asp Ile Ile Cys Asp Glu Cys His Ser Thr Asp Ala  
100 105 110

Thr Ser Ile Leu Gly Ile Gly Thr Val Leu Asp Gln Ala Glu Thr Ala  
115 120 125

Gly Ala Arg Leu Val Val Leu Ala Thr Ala Thr Pro Pro Gly Ser Val  
130 135 140

Thr Val Ser His Pro Asn Ile Glu Glu Val Ala Leu Ser Thr Thr Gly  
145 150 155 160

Glu Ile Pro Phe Tyr Gly Lys Ala Ile Pro Leu Glu Val Ile Lys Gly  
165 170 175

Gly Arg His Leu Ile Phe Cys His Ser Lys Lys Lys Cys Asp Glu Leu  
180 185 190

Ala Ala

<210> 87  
<211> 205  
<212> PRT  
<213> Hepatitis C virus

<400> 87  
Leu Ala Asp Gly Gly Cys Ser Gly Gly Ala Tyr Asp Ile Ile Ile Cys  
1 5 10 15  
  
Asp Glu Cys His Ser Thr Asp Ala Thr Ser Ile Leu Gly Ile Gly Thr  
20 25 30  
  
Val Leu Asp Gln Ala Glu Thr Ala Gly Ala Arg Leu Val Val Leu Ala  
35 40 45  
  
Thr Ala Thr Pro Pro Gly Ser Val Thr Val Ser His Pro Asn Ile Glu  
50 55 60  
  
Glu Val Ala Leu Ser Thr Thr Gly Glu Ile Pro Phe Tyr Gly Lys Ala  
65 70 75 80  
  
Ile Pro Leu Glu Val Ile Lys Gly Gly Arg His Leu Ile Phe Cys His  
85 90 95  
  
Ser Lys Lys Lys Cys Asp Glu Leu Ala Ala Lys Leu Val Ala Leu Gly  
100 105 110  
  
Ile Asn Ala Val Ala Tyr Tyr Arg Gly Leu Asp Val Ser Val Ile Pro  
115 120 125  
  
Thr Ser Gly Asp Val Val Val Ser Thr Asp Ala Leu Met Thr Gly  
130 135 140  
  
Phe Thr Gly Asp Phe Asp Ser Val Ile Asp Cys Asn Thr Cys Val Thr  
145 150 155 160  
  
Gln Thr Val Asp Phe Ser Leu Asp Pro Thr Phe Thr Ile Glu Thr Thr  
165 170 175  
  
Thr Leu Pro Gln Asp Ala Val Ser Arg Thr Gln Arg Arg Gly Arg Thr  
180 185 190  
  
Gly Arg Gly Lys Pro Gly Ile Tyr Arg Phe Val Ala Pro  
195 200 205

<210> 88  
<211> 186  
<212> PRT  
<213> Hepatitis C virus

<400> 88  
Ser Thr Asp Ala Thr Ser Ile Leu Gly Ile Gly Thr Val Leu Asp Gln  
1 5 10 15  
  
Ala Glu Thr Ala Gly Ala Arg Leu Val Val Leu Ala Thr Ala Thr Pro  
20 25 30  
  
Pro Gly Ser Val Thr Val Ser His Pro Asn Ile Glu Glu Val Ala Leu  
35 40 45

Ser Thr Thr Gly Glu Ile Pro Phe Tyr Gly Lys Ala Ile Pro Leu Glu  
50 55 60

Val Ile Lys Gly Gly Arg His Leu Ile Phe Cys His Ser Lys Lys Lys  
65 70 75 80

Cys Asp Glu Leu Ala Ala Lys Leu Val Ala Leu Gly Ile Asn Ala Val  
85 90 95

Ala Tyr Tyr Arg Gly Leu Asp Val Ser Val Ile Pro Thr Ser Gly Asp  
100 105 110

Val Val Val Val Ser Thr Asp Ala Leu Met Thr Gly Phe Thr Gly Asp  
115 120 125

Phe Asp Ser Val Ile Asp Cys Asn Thr Cys Val Thr Gln Thr Val Asp  
130 135 140

Phe Ser Leu Asp Pro Thr Phe Thr Ile Glu Thr Thr Thr Leu Pro Gln  
145 150 155 160

Asp Ala Val Ser Arg Thr Gln Arg Arg Gly Arg Thr Gly Arg Gly Lys  
165 170 175

Pro Gly Ile Tyr Arg Phe Val Ala Pro Gly  
180 185

<210> 89

<211> 158

<212> PRT

<213> Hepatitis C virus

<400> 89

Val Ile Asp Cys Asn Thr Cys Val Thr Gln Thr Val Asp Phe Ser Leu  
1 5 10 15

Asp Pro Thr Phe Thr Ile Glu Thr Thr Thr Leu Pro Gln Asp Ala Val  
20 25 30

Ser Arg Thr Gln Arg Arg Gly Arg Thr Gly Arg Gly Lys Pro Gly Ile  
35 40 45

Tyr Arg Phe Val Ala Pro Gly Glu Arg Pro Ser Gly Met Phe Asp Ser  
50 55 60

Ser Val Leu Cys Glu Cys Tyr Asp Ala Gly Cys Ala Trp Tyr Glu Leu  
65 70 75 80

Thr Pro Ala Glu Thr Thr Val Arg Leu Arg Ala Tyr Met Asn Thr Pro  
85 90 95

Gly Leu Pro Val Cys Gln Asp His Leu Glu Phe Trp Glu Gly Val Phe  
100 105 110

Thr Gly Leu Thr His Ile Asp Ala His Phe Leu Ser Gln Thr Lys Gln  
115 120 125

Ser Gly Glu Asn Phe Pro Tyr Leu Val Ala Tyr Gln Ala Thr Val Cys

130

135

140

Ala Arg Ala Gln Ala Pro Pro Pro Ser Trp Asp Gln Met Trp  
145 150 155

<210> 90

<211> 129

<212> PRT

<213> Hepatitis C virus

<400> 90

Arg Phe Val Ala Pro Gly Glu Arg Pro Ser Gly Met Phe Asp Ser Ser  
1 5 10 15

Val Leu Cys Glu Cys Tyr Asp Ala Gly Cys Ala Trp Tyr Glu Leu Thr  
20 25 30

Pro Ala Glu Thr Thr Val Arg Leu Arg Ala Tyr Met Asn Thr Pro Gly  
35 40 45

Leu Pro Val Cys Glu Asp His Leu Glu Phe Trp Glu Gly Val Phe Thr  
50 55 60

Gly Leu Thr His Ile Asp Ala His Phe Leu Ser Gln Thr Lys Gln Ser  
65 70 75 80

Gly Glu Asn Phe Pro Tyr Leu Val Ala Tyr Gln Ala Thr Val Cys Ala  
85 90 95

Arg Ala Gln Ala Pro Pro Pro Ser Trp Asp Gln Met Trp Lys Cys Leu  
100 105 110

Ile Arg Leu Lys Pro Thr Leu His Gly Pro Thr Pro Leu Leu Tyr Arg  
115 120 125

Leu

<210> 91

<211> 51

<212> PRT

<213> Hepatitis C virus

<400> 91

Thr Ser Thr Trp Val Leu Val Gly Gly Val Leu Ala Ala Leu Ala Ala  
1 5 10 15

Tyr Cys Leu Ser Thr Gly Cys Val Val Ile Val Gly Arg Ile Val Leu  
20 25 30

Ser Gly Lys Pro Ala Ile Ile Pro Asp Arg Glu Val Leu Tyr Gln Glu  
35 40 45

Phe Asp Glu

50

<210> 92  
<211> 18  
<212> PRT  
<213> Hepatitis C virus

<400> 92  
Ala Ala Leu Ala Ala Tyr Cys Leu Ser Thr Gly Cys Val Val Ile Val  
1 5 10 15

Gly Arg

<210> 93  
<211> 208  
<212> PRT  
<213> Hepatitis C virus

<400> 93  
Phe Thr Ala Ala Val Thr Ser Pro Leu Thr Thr Gly Gln Thr Leu Leu  
1 5 10 15

Phe Asn Ile Leu Gly Gly Trp Val Ala Ala Gln Leu Ala Ala Pro Gly  
20 25 30

Ala Ala Thr Ala Phe Val Gly Ala Gly Leu Ala Gly Ala Ala Ile Gly  
35 40 45

Ser Val Gly Leu Gly Lys Val Leu Val Asp Ile Leu Ala Gly Tyr Gly  
50 55 60

Ala Gly Val Ala Gly Ala Leu Val Ala Phe Lys Ile Met Ser Gly Glu  
65 70 75 80

Val Pro Ser Thr Glu Asp Leu Val Asn Leu Leu Pro Ala Ile Leu Ser  
85 90 95

Pro Gly Ala Leu Val Val Gly Val Val Cys Ala Ala Ile Leu Arg Arg  
100 105 110

His Val Gly Pro Gly Glu Gly Ala Val Gln Trp Met Asn Arg Leu Ile  
115 120 125

Ala Phe Ala Ser Arg Gly Asn His Val Ser Pro Thr His Tyr Val Pro  
130 135 140

Glu Ser Asp Ala Ala Ala Arg Val Thr Ala Ile Leu Ser Ser Leu Thr  
145 150 155 160

Val Thr Gln Leu Leu Arg Arg Leu His Gln Trp Ile Ser Ser Glu Cys  
165 170 175

Thr Thr Pro Cys Ser Gly Ser Trp Leu Arg Asp Ile Trp Asp Trp Ile  
180 185 190

Cys Glu Val Leu Ser Asp Phe Lys Thr Trp Leu Lys Ala Lys Leu Met  
195 200 205

<210> 94  
<211> 207  
<212> PRT  
<213> Hepatitis C virus

<400> 94  
Thr Ala Phe Val Gly Ala Gly Leu Ala Gly Ala Ala Ile Gly Ser Val  
1 5 10 15

Gly Leu Gly Lys Val Leu Val Asp Ile Leu Ala Gly Tyr Gly Ala Gly  
20 25 30

Val Ala Gly Ala Leu Val Ala Phe Lys Ile Met Ser Gly Glu Val Pro  
35 40 45

Ser Thr Glu Asp Leu Val Asn Leu Leu Pro Ala Ile Leu Ser Pro Gly  
50 55 60

Ala Leu Val Val Gly Val Val Cys Ala Ala Ile Leu Arg Arg His Val  
65 70 75 80

Gly Pro Gly Glu Gly Ala Val Gln Trp Met Asn Arg Leu Ile Ala Phe  
85 90 95

Ala Ser Arg Gly Asn His Val Ser Pro Thr His Tyr Val Pro Glu Ser  
100 105 110

Asp Ala Ala Ala Arg Val Thr Ala Ile Leu Ser Ser Leu Thr Val Thr  
115 120 125

Gln Leu Leu Arg Arg Leu His Gln Trp Ile Ser Ser Glu Cys Thr Thr  
130 135 140

Pro Cys Ser Gly Ser Trp Leu Arg Asp Ile Trp Asp Trp Ile Cys Glu  
145 150 155 160

Val Leu Ser Asp Phe Lys Thr Trp Leu Lys Ala Lys Leu Met Pro Gln  
165 170 175

Leu Pro Gly Ile Pro Phe Val Ser Cys Gln Arg Gly Tyr Arg Gly Val  
180 185 190

Trp Arg Gly Asp Gly Ile Met His Thr Arg Cys His Cys Gly Ala  
195 200 205

<210> 95  
<211> 225  
<212> PRT  
<213> Hepatitis C virus

<400> 95  
Leu Val Asp Ile Leu Ala Gly Tyr Gly Ala Gly Val Ala Gly Ala Leu  
1 5 10 15

Val Ala Phe Lys Ile Met Ser Gly Glu Val Pro Ser Thr Glu Asp Leu

20

25

30

Val Asn Leu Leu Pro Ala Ile Leu Ser Pro Gly Ala Leu Val Val Gly  
 35 40 45

Val Val Cys Ala Ala Ile Leu Arg Arg His Val Gly Pro Gly Glu Gly  
 50 55 60

Ala Val Gln Trp Met Asn Arg Leu Ile Ala Phe Ala Ser Arg Gly Asn  
 65 70 75 80

His Val Ser Pro Thr His Tyr Val Pro Glu Ser Asp Ala Ala Ala Arg  
 85 90 95

Val Thr Ala Ile Leu Ser Ser Leu Thr Val Thr Gln Leu Leu Arg Arg  
 100 105 110

Leu His Gln Trp Ile Ser Ser Glu Cys Thr Thr Pro Cys Ser Gly Ser  
 115 120 125

Trp Leu Arg Asp Ile Trp Asp Trp Ile Cys Glu Val Leu Ser Asp Phe  
 130 135 140

Lys Thr Trp Leu Lys Ala Lys Leu Met Pro Gln Leu Pro Gly Ile Pro  
 145 150 155 160

Phe Val Ser Cys Gln Arg Gly Tyr Arg Gly Val Trp Arg Gly Asp Gly  
 165 170 175

Ile Met His Thr Arg Cys His Cys Gly Ala Glu Ile Thr Gly His Val  
 180 185 190

Lys Asn Gly Thr Met Arg Ile Val Gly Pro Arg Thr Cys Arg Asn Met  
 195 200 205

Trp Ser Gly Thr Phe Pro Ile Asn Ala Tyr Thr Thr Gly Pro Cys Thr  
 210 215 220

Pro  
 225

<210> 96  
 <211> 145  
 <212> PRT  
 <213> Hepatitis C virus

<400> 96  
 Ala Gly Tyr Gly Ala Gly Val Ala Gly Ala Leu Val Ala Phe Lys Ile  
 1 5 10 15

Met Ser Gly Glu Val Pro Ser Thr Glu Asp Leu Val Asn Leu Leu Pro  
 20 25 30

Ala Ile Leu Ser Pro Gly Ala Leu Val Val Gly Val Val Cys Ala Ala  
 35 40 45

Ile Leu Arg Arg His Val Gly Pro Gly Glu Gly Ala Val Gln Trp Met  
 50 55 60

Asn Arg Leu Ile Ala Phe Ala Ser Arg Gly Asn His Val Ser Pro Thr  
65 70 75 80

His Tyr Val Pro Glu Ser Asp Ala Ala Ala Arg Val Thr Ala Ile Leu  
85 90 95

Ser Ser Leu Thr Val Thr Gln Leu Leu Arg Arg Leu His Gln Trp Ile  
100 105 110

Ser Ser Glu Cys Thr Thr Pro Cys Ser Gly Ser Trp Leu Arg Asp Ile  
115 120 125

Trp Asp Trp Ile Cys Glu Val Leu Ser Asp Phe Lys Thr Trp Leu Lys  
130 135 140

Ala  
145

<210> 97

<211> 54

<212> PRT

<213> Hepatitis C virus

<400> 97

Ala Leu Val Val Gly Val Val Cys Ala Ala Ile Leu Arg Arg His Val  
1 5 10 15

Gly Pro Gly Glu Gly Ala Val Gln Trp Met Asn Arg Leu Ile Ala Phe  
20 25 30

Ala Ser Arg Gly Asn His Val Ser Pro Thr His Tyr Val Pro Glu Ser  
35 40 45

Asp Ala Ala Ala Arg Val  
50

<210> 98

<211> 165

<212> PRT

<213> Hepatitis C virus

<400> 98

Ala Ser Arg Gly Asn His Val Ser Pro Thr His Tyr Val Pro Glu Ser  
1 5 10 15

Asp Ala Ala Ala Arg Val Thr Ala Ile Leu Ser Ser Leu Thr Val Thr  
20 25 30

Gln Leu Leu Arg Arg Leu His Gln Trp Ile Ser Ser Glu Cys Thr Thr  
35 40 45

Pro Cys Ser Gly Ser Trp Leu Arg Asp Ile Trp Asp Trp Ile Cys Glu  
50 55 60

Val Leu Ser Asp Phe Lys Thr Trp Leu Lys Ala Lys Leu Met Pro Gln  
65 70 75 80

Leu	Pro	Gly	Ile	Pro	Phe	Val	Ser	Cys	Gln	Arg	Gly	Tyr	Arg	Gly	Val
85									90					95	
Trp	Arg	Gly	Asp	Gly	Ile	Met	His	Thr	Arg	Cys	His	Cys	Gly	Ala	Glu
100								105					110		
Ile	Thr	Gly	His	Val	Lys	Asn	Gly	Thr	Met	Arg	Ile	Val	Gly	Pro	Arg
115							120					125			
Thr	Cys	Arg	Asn	Met	Trp	Ser	Gly	Thr	Phe	Pro	Ile	Asn	Ala	Tyr	Thr
130						135						140			
Thr	Gly	Pro	Cys	Thr	Pro	Leu	Pro	Ala	Pro	Asn	Tyr	Lys	Phe	Ala	Leu
145						150					155			160	
Trp	Arg	Val	Ser	Ala											
				165											

<210> 99

<211> 308

<212> PRT

<213> Hepatitis C virus

<400> 99

Tyr	Val	Pro	Glu	Ser	Asp	Ala	Ala	Ala	Arg	Val	Thr	Ala	Ile	Leu	Ser
1						5				10				15	

Ser	Leu	Thr	Val	Thr	Gln	Leu	Leu	Arg	Arg	Leu	His	Gln	Trp	Ile	Ser
20						25					30				

Ser	Glu	Cys	Thr	Thr	Pro	Cys	Ser	Gly	Ser	Trp	Leu	Arg	Asp	Ile	Trp
35							40					45			

Asp	Trp	Ile	Cys	Glu	Val	Leu	Ser	Asp	Phe	Lys	Thr	Trp	Leu	Lys	Ala
50						55				60					

Lys	Leu	Met	Pro	Gln	Leu	Pro	Gly	Ile	Pro	Phe	Val	Ser	Cys	Gln	Arg
65						70				75			80		

Gly	Tyr	Arg	Gly	Val	Trp	Arg	Gly	Asp	Gly	Ile	Met	His	Thr	Arg	Cys
						85			90			95			

His	Cys	Gly	Ala	Glu	Ile	Thr	Gly	His	Val	Lys	Asn	Gly	Thr	Met	Arg
100								105				110			

Ile	Val	Gly	Pro	Arg	Thr	Cys	Arg	Asn	Met	Trp	Ser	Gly	Thr	Phe	Pro
115							120					125			

Ile	Asn	Ala	Tyr	Thr	Thr	Gly	Pro	Cys	Thr	Pro	Leu	Pro	Ala	Pro	Asn
130							135				140				

Tyr	Lys	Phe	Ala	Leu	Trp	Arg	Val	Ser	Ala	Glu	Glu	Tyr	Val	Glu	Ile
145						150				155			160		

Arg	Arg	Val	Gly	Asp	Phe	His	Tyr	Val	Ser	Gly	Met	Thr	Thr	Asp	Asn
							165			170			175		

Leu	Lys	Cys	Pro	Cys	Gln	Ile	Pro	Ser	Pro	Glu	Phe	Phe	Thr	Glu	Leu
						180				185			190		

Asp Gly Val Arg Leu His Arg Phe Ala Pro Pro Cys Lys Pro Leu Leu  
 195 200 205  
 Arg Glu Glu Val Ser Phe Arg Val Gly Leu His Glu Tyr Pro Val Gly  
 210 215 220  
 Ser Gln Leu Pro Cys Glu Pro Glu Pro Asp Val Ala Val Leu Thr Ser  
 225 230 235 240  
 Met Leu Thr Asp Pro Ser His Ile Thr Ala Glu Ala Ala Gly Arg Arg  
 245 250 255  
 Leu Ala Arg Gly Ser Pro Pro Ser Met Ala Ser Ser Ser Ala Ser Gln  
 260 265 270  
 Leu Ser Ala Pro Ser Leu Lys Ala Thr Cys Thr Ala Asn His Asp Ser  
 275 280 285  
 Pro Asp Ala Glu Leu Ile Glu Ala Asn Leu Leu Trp Arg Gln Glu Met  
 290 295 300  
 Gly Gly Asn Ile  
 305

<210> 100  
 <211> 283  
 <212> PRT  
 <213> Hepatitis C virus  
  
 <400> 100  
 Leu Ser Ser Leu Thr Val Thr Gln Leu Leu Arg Arg Leu His Gln Trp  
 1 5 10 15  
  
 Ile Ser Ser Glu Cys Thr Thr Pro Cys Ser Gly Ser Trp Leu Arg Asp  
 20 25 30  
  
 Ile Trp Asp Trp Ile Cys Glu Val Leu Ser Asp Phe Lys Thr Trp Leu  
 35 40 45  
  
 Lys Ala Lys Leu Met Pro Gln Leu Pro Gly Ile Pro Phe Val Ser Cys  
 50 55 60  
  
 Gln Arg Gly Tyr Arg Gly Val Trp Arg Gly Asp Gly Ile Met His Thr  
 65 70 75 80  
  
 Arg Cys His Cys Gly Ala Glu Ile Thr Gly His Val Lys Asn Gly Thr  
 85 90 95  
  
 Met Arg Ile Val Gly Pro Arg Thr Cys Arg Asn Met Trp Ser Gly Thr  
 100 105 110  
  
 Phe Pro Ile Asn Ala Tyr Thr Thr Gly Pro Cys Thr Pro Leu Pro Ala  
 115 120 125  
  
 Pro Asn Tyr Lys Phe Ala Leu Trp Arg Val Ser Ala Glu Glu Tyr Val  
 130 135 140  
  
 Glu Ile Arg Arg Val Gly Asp Phe His Tyr Val Ser Gly Met Thr Thr

145	150	155	160
Asp Asn Leu Lys Cys Pro Cys Gln Ile Pro Ser Pro Glu Phe Phe Thr			
165		170	175
Glu Leu Asp Gly Val Arg Leu His Arg Phe Ala Pro Pro Cys Lys Pro			
180	185		190
Leu Leu Arg Glu Glu Val Ser Phe Arg Val Gly Leu His Glu Tyr Pro			
195	200		205
Val Gly Ser Gln Leu Pro Cys Glu Pro Glu Pro Asp Val Ala Val Leu			
210	215		220
Thr Ser Met Leu Thr Asp Pro Ser His Ile Thr Ala Glu Ala Ala Gly			
225	230	235	240
Arg Arg Leu Ala Arg Gly Ser Pro Pro Ser Met Ala Ser Ser Ser Ala			
245		250	255
Ser Gln Leu Ser Ala Pro Ser Leu Lys Ala Thr Cys Thr Ala Asn His			
260	265		270
Asp Ser Pro Asp Ala Glu Leu Ile Glu Ala Asn			
275	280		

<210> 101

<211> 249

<212> PRT

<213> Hepatitis C virus

<400> 101

Ser	Leu	Thr	Val	Thr	Gln	Leu	Leu	Arg	Arg	Leu	His	Gln	Trp	Ile	Ser
1					5					10			15		

Ser	Glu	Cys	Thr	Thr	Pro	Cys	Ser	Gly	Ser	Trp	Leu	Arg	Asp	Ile	Trp
20							25					30			

Asp	Trp	Ile	Cys	Glu	Val	Leu	Ser	Asp	Phe	Lys	Thr	Trp	Leu	Lys	Ala
35							40				45				

Lys	Leu	Met	Pro	Gln	Leu	Pro	Gly	Ile	Pro	Phe	Val	Ser	Cys	Gln	Arg
50							55				60				

Gly	Tyr	Arg	Gly	Val	Trp	Arg	Gly	Asp	Gly	Ile	Met	His	Thr	Arg	Cys
65					70					75			80		

His	Cys	Gly	Ala	Glu	Ile	Thr	Gly	His	Val	Lys	Asn	Gly	Thr	Met	Arg
85								90				95			

Ile	Val	Gly	Pro	Arg	Thr	Cys	Arg	Asn	Met	Trp	Ser	Gly	Thr	Phe	Pro
100							105				110				

Ile	Asn	Ala	Tyr	Thr	Thr	Gly	Pro	Cys	Thr	Pro	Leu	Pro	Ala	Pro	Asn
115							120				125				

Tyr	Lys	Phe	Ala	Leu	Trp	Arg	Val	Ser	Ala	Glu	Glu	Tyr	Val	Glu	Ile
130					135					140					

Arg Arg Val Gly Asp Phe His Tyr Val Ser Gly Met Thr Thr Asp Asn  
145 150 155 160

Leu Lys Cys Pro Cys Gln Ile Pro Ser Pro Glu Phe Phe Thr Glu Leu  
165 170 175

Asp Gly Val Arg Leu His Arg Phe Ala Pro Pro Cys Lys Pro Leu Leu  
180 185 190

Arg Glu Glu Val Ser Phe Arg Val Gly Leu His Glu Tyr Pro Val Gly  
195 200 205

Ser Gln Leu Pro Cys Glu Pro Glu Pro Asp Val Ala Val Leu Thr Ser  
210 215 220

Met Leu Thr Asp Pro Ser His Ile Thr Ala Glu Ala Ala Gly Arg Arg  
225 230 235 240

Leu Ala Arg Gly Ser Pro Pro Ser Met  
245

<210> 102  
<211> 85  
<212> PRT  
<213> Hepatitis C virus

<400> 102  
Thr Trp Leu Lys Ala Lys Leu Met Pro Gln Leu Pro Gly Ile Pro Phe  
1 5 10 15

Val Ser Cys Gln Arg Gly Tyr Arg Gly Val Trp Arg Gly Asp Gly Ile  
20 25 30

Met His Thr Arg Cys His Cys Gly Ala Glu Ile Thr Gly His Val Lys  
35 40 45

Asn Gly Thr Met Arg Ile Val Gly Pro Arg Thr Cys Arg Asn Met Trp  
50 55 60

Ser Gly Thr Phe Pro Ile Asn Ala Tyr Thr Thr Gly Pro Cys Thr Pro  
65 70 75 80

Leu Pro Ala Pro Asn  
85

<210> 103  
<211> 94  
<212> PRT  
<213> Hepatitis C virus

<400> 103  
Glu Ile Thr Gly His Val Lys Asn Gly Thr Met Arg Ile Val Gly Pro  
1 5 10 15

Arg Thr Cys Arg Asn Met Trp Ser Gly Thr Phe Pro Ile Asn Ala Tyr  
20 25 30

Thr Thr Gly Pro Cys Thr Pro Leu Pro Ala Pro Asn Tyr Lys Phe Ala  
35 40 45

Leu Trp Arg Val Ser Ala Glu Glu Tyr Val Glu Ile Arg Arg Val Gly  
50 55 60

Asp Phe His Tyr Val Ser Gly Met Thr Thr Asp Asn Leu Lys Cys Pro  
65 70 75 80

Cys Gln Ile Pro Ser Pro Glu Phe Phe Thr Glu Leu Asp Gly  
85 90

<210> 104

<211> 75

<212> PRT

<213> Hepatitis C virus

<400> 104

Ile Glu Ala Asn Leu Leu Trp Arg Gln Glu Met Gly Gly Asn Ile Thr  
1 5 10 15

Arg Val Glu Ser Glu Asn Lys Val Val Ile Leu Asp Ser Phe Asp Pro  
20 25 30

Leu Val Ala Glu Glu Asp Glu Arg Glu Val Ser Val Pro Ala Glu Ile  
35 40 45

Leu Arg Lys Ser Arg Arg Phe Ala Arg Ala Leu Pro Val Trp Ala Arg  
50 55 60

Pro Asp Tyr Asn Pro Pro Leu Val Glu Thr Trp  
65 70 75

<210> 105

<211> 90

<212> PRT

<213> Hepatitis C virus

<400> 105

His Gly Cys Pro Leu Pro Pro Pro Arg Ser Pro Pro Val Pro Pro Pro  
1 5 10 15

Arg Lys Lys Arg Thr Val Val Leu Thr Glu Ser Thr Leu Ser Thr Ala  
20 25 30

Leu Ala Glu Leu Ala Thr Lys Ser Phe Gly Ser Ser Ser Thr Ser Gly  
35 40 45

Ile Thr Gly Asp Asn Thr Thr Ser Ser Glu Pro Ala Pro Ser Gly  
50 55 60

Cys Pro Pro Asp Ser Asp Val Glu Ser Tyr Ser Ser Met Pro Pro Leu  
65 70 75 80

Glu Gly Glu Pro Gly Asp Pro Asp Leu Ser  
85 90

<210> 106  
<211> 137  
<212> PRT  
<213> Hepatitis C virus

<400> 106  
Ser Trp Thr Gly Ala Leu Val Thr Pro Cys Ala Ala Glu Glu Gln Lys  
1 5 10 15

Leu Pro Ile Asn Ala Leu Ser Asn Ser Leu Leu Arg His His Asn Leu  
20 25 30

Val Tyr Ser Thr Thr Ser Arg Ser Ala Cys Gln Arg Gln Lys Lys Val  
35 40 45

Thr Phe Asp Arg Leu Gln Val Leu Asp Ser His Tyr Gln Asp Val Leu  
50 55 60

Lys Glu Val Lys Ala Ala Ser Lys Val Lys Ala Asn Leu Leu Ser  
65 70 75 80

Val Glu Glu Ala Cys Ser Leu Thr Pro Pro His Ser Ala Lys Ser Lys  
85 90 95

Phe Gly Tyr Gly Ala Lys Asp Val Arg Cys His Ala Arg Lys Ala Val  
100 105 110

Ala His Ile Asn Ser Val Trp Lys Asp Leu Leu Glu Asp Ser Val Thr  
115 120 125

Pro Ile Asp Thr Thr Ile Met Ala Lys  
130 135

<210> 107  
<211> 300  
<212> PRT  
<213> Hepatitis C virus

<400> 107  
Ala Asn Leu Leu Ser Val Glu Glu Ala Cys Ser Leu Thr Pro Pro His  
1 5 10 15

Ser Ala Lys Ser Lys Phe Gly Tyr Gly Ala Lys Asp Val Arg Cys His  
20 25 30

Ala Arg Lys Ala Val Ala His Ile Asn Ser Val Trp Lys Asp Leu Leu  
35 40 45

Glu Asp Ser Val Thr Pro Ile Asp Thr Thr Ile Met Ala Lys Asn Glu  
50 55 60

Val Phe Cys Val Gln Pro Glu Lys Gly Arg Lys Pro Ala Arg Leu  
65 70 75 80

Ile Val Phe Pro Asp Leu Gly Val Arg Val Cys Glu Lys Met Ala Leu  
85 90 95

Tyr Asp Val Val Ser Lys Leu Pro Leu Ala Val Met Gly Ser Ser Tyr  
100 105 110

Gly Phe Gln Tyr Ser Pro Gly Gln Arg Val Glu Phe Leu Val Gln Ala  
115 120 125

Trp Lys Ser Lys Lys Thr Pro Met Gly Phe Ser Tyr Asp Thr Arg Cys  
130 135 140

Phe Asp Ser Thr Val Thr Glu Ser Asp Ile Arg Thr Glu Glu Ala Ile  
145 150 155 160

Tyr Gln Cys Cys Asp Leu Asp Pro Gln Ala Arg Val Ala Ile Lys Ser  
165 170 175

Leu Thr Glu Arg Leu Tyr Val Gly Gly Pro Leu Thr Asn Ser Arg Gly  
180 185 190

Glu Asn Cys Gly Tyr Arg Arg Cys Arg Ala Ser Gly Val Leu Thr Thr  
195 200 205

Ser Cys Gly Asn Thr Leu Thr Cys Tyr Ile Lys Ala Arg Ala Ala Cys  
210 215 220

Arg Ala Ala Gly Leu Gln Asp Cys Thr Met Leu Val Cys Gly Asp Asp  
225 230 235 240

Leu Val Val Ile Cys Glu Ser Ala Gly Val Gln Glu Asp Ala Ala Ser  
245 250 255

Leu Arg Ala Phe Thr Glu Ala Met Thr Arg Tyr Ser Ala Pro Pro Gly  
260 265 270

Asp Pro Pro Gln Pro Glu Tyr Asp Leu Glu Leu Ile Thr Ser Cys Ser  
275 280 285

Ser Asn Val Ser Val Ala His Asp Gly Ala Gly Lys  
290 295 300

<210> 108  
<211> 199  
<212> PRT  
<213> Hepatitis C virus

<400> 108  
Glu Glu Ala Cys Ser Leu Thr Pro Pro His Ser Ala Lys Ser Lys Phe  
1 5 10 15

Gly Tyr Gly Ala Lys Asp Val Arg Cys His Ala Arg Lys Ala Val Ala  
20 25 30

His Ile Asn Ser Val Trp Lys Asp Leu Leu Glu Asp Ser Val Thr Pro  
35 40 45

Ile Asp Thr Thr Ile Met Ala Lys Asn Glu Val Phe Cys Val Gln Pro  
50 55 60

Glu Lys Gly Gly Arg Lys Pro Ala Arg Leu Ile Val Phe Pro Asp Leu  
65 70 75 80

Gly Val Arg Val Cys Glu Lys Met Ala Leu Tyr Asp Val Val Ser Lys  
85 90 95

Leu Pro Leu Ala Val Met Gly Ser Ser Tyr Gly Phe Gln Tyr Ser Pro  
100 105 110

Gly Gln Arg Val Glu Phe Leu Val Gln Ala Trp Lys Ser Lys Lys Thr  
115 120 125

Pro Met Gly Phe Ser Tyr Asp Thr Arg Cys Phe Asp Ser Thr Val Thr  
130 135 140

Glu Ser Asp Ile Arg Thr Glu Glu Ala Ile Tyr Gln Cys Cys Asp Leu  
145 150 155 160

Asp Pro Gln Ala Arg Val Ala Ile Lys Ser Leu Thr Glu Arg Leu Tyr  
165 170 175

Val Gly Gly Pro Leu Thr Asn Ser Arg Gly Glu Asn Cys Gly Tyr Arg  
180 185 190

Arg Cys Arg Ala Ser Gly Val  
195

<210> 109  
<211> 260  
<212> PRT  
<213> Hepatitis C virus

<400> 109  
Leu Leu Glu Asp Ser Val Thr Pro Ile Asp Thr Thr Ile Met Ala Lys  
1 5 10 15

Asn Glu Val Phe Cys Val Gln Pro Glu Lys Gly Gly Arg Lys Pro Ala  
20 25 30

Arg Leu Ile Val Phe Pro Asp Leu Gly Val Arg Val Cys Glu Lys Met  
35 40 45

Ala Leu Tyr Asp Val Val Ser Lys Leu Pro Leu Ala Val Met Gly Ser  
50 55 60

Ser Tyr Gly Phe Gln Tyr Ser Pro Gly Gln Arg Val Glu Phe Leu Val  
65 70 75 80

Gln Ala Trp Lys Ser Lys Lys Thr Pro Met Gly Phe Ser Tyr Asp Thr  
85 90 95

Arg Cys Phe Asp Ser Thr Val Thr Glu Ser Asp Ile Arg Thr Glu Glu  
100 105 110

Ala Ile Tyr Gln Cys Cys Asp Leu Asp Pro Gln Ala Arg Val Ala Ile  
115 120 125

Lys Ser Leu Thr Glu Arg Leu Tyr Val Gly Gly Pro Leu Thr Asn Ser  
130 135 140

Arg Gly Glu Asn Cys Gly Tyr Arg Arg Cys Arg Ala Ser Gly Val Leu

145	150	155	160
Thr Thr Ser Cys Gly Asn Thr Leu Thr Cys Tyr Ile Lys Ala Arg Ala			
165	170	175	
Ala Cys Arg Ala Ala Gly Leu Gln Asp Cys Thr Met Leu Val Cys Gly			
180	185	190	
Asp Asp Leu Val Val Ile Cys Glu Ser Ala Gly Val Gln Glu Asp Ala			
195	200	205	
Ala Ser Leu Arg Ala Phe Thr Glu Ala Met Thr Arg Tyr Ser Ala Pro			
210	215	220	
Pro Gly Asp Pro Pro Gln Pro Glu Tyr Asp Leu Glu Leu Ile Thr Ser			
225	230	235	240
Cys Ser Ser Asn Val Ser Val Ala His Asp Gly Ala Gly Lys Arg Val			
245	250	255	
Tyr Tyr Leu Thr			
260			

<210> 110

<211> 127

<212> PRT

<213> Hepatitis C virus

<400> 110

Val Ile Cys Glu Ser Ala Gly Val Gln Glu Asp Ala Ala Ser Leu Arg			
1	5	10	15

Ala Phe Thr Glu Ala Met Thr Arg Tyr Ser Ala Pro Pro Gly Asp Pro			
20	25	30	

Pro Gln Pro Glu Tyr Asp Leu Glu Leu Ile Thr Ser Cys Ser Ser Asn			
35	40	45	

Val Ser Val Ala His Asp Gly Ala Gly Lys Arg Val Tyr Tyr Leu Thr			
50	55	60	

Arg Asp Pro Thr Thr Pro Leu Ala Arg Ala Ala Trp Glu Thr Ala Arg			
65	70	75	80

His Thr Pro Val Asn Ser Trp Leu Gly Asn Ile Ile Met Phe Ala Pro			
85	90	95	

Thr Leu Trp Ala Arg Met Ile Leu Met Thr His Phe Phe Ser Val Leu			
100	105	110	

Ile Ala Arg Asp Gln Leu Glu Gln Ala Leu Asn Cys Glu Ile Tyr			
115	120	125	

<210> 111

<211> 89

<212> PRT

<213> Hepatitis C virus

<400> 111  
Val Ser Val Ala His Asp Gly Ala Gly Lys Arg Val Tyr Tyr Leu Thr  
1 5 10 15  
Arg Asp Pro Thr Thr Pro Leu Ala Arg Ala Ala Trp Glu Thr Ala Arg  
20 25 30  
His Thr Pro Val Asn Ser Trp Leu Gly Asn Ile Ile Met Phe Ala Pro  
35 40 45  
Thr Leu Trp Ala Arg Met Ile Leu Met Thr His Phe Phe Ser Val Leu  
50 55 60  
Ile Ala Arg Asp Gln Leu Glu Gln Ala Leu Asn Cys Glu Ile Tyr Gly  
65 70 75 80  
Ala Cys Tyr Ser Ile Glu Pro Leu Asp  
85

<210> 112  
<211> 73  
<212> PRT  
<213> Hepatitis C virus

<400> 112  
Leu His Gly Leu Ser Ala Phe Ser Leu His Ser Tyr Ser Pro Gly Glu  
1 5 10 15  
Ile Asn Arg Val Ala Ala Cys Leu Arg Lys Leu Gly Val Pro Pro Leu  
20 25 30  
Arg Ala Trp Arg His Arg Ala Arg Ser Val Arg Ala Arg Leu Leu Ser  
35 40 45  
Arg Gly Gly Arg Ala Ala Ile Cys Gly Lys Tyr Leu Phe Asn Trp Ala  
50 55 60  
Val Arg Thr Lys Leu Lys Leu Thr Pro  
65 70

<210> 113  
<211> 63  
<212> PRT  
<213> Hepatitis C virus

<400> 113  
Ser Pro Gly Glu Ile Asn Arg Val Ala Ala Cys Leu Arg Lys Leu Gly  
1 5 10 15  
Val Pro Pro Leu Arg Ala Trp Arg His Arg Ala Arg Ser Val Arg Ala  
20 25 30  
Arg Leu Leu Ser Arg Gly Gly Arg Ala Ala Ile Cys Gly Lys Tyr Leu  
35 40 45  
Phe Asn Trp Ala Val Arg Thr Lys Leu Lys Leu Thr Pro Ile Ala

<210> 114  
 <211> 310  
 <212> DNA  
 <213> Hepatitis C virus

<400> 114  
 tgcttcgag tgccccggga ggtctcgtag accgtgcacc atgaggcacga atcctaaacc 60  
 tcaaagaaaa accaaacgta acaccaaccc tcgcccacag gacgtcaagt tcccggtgg 120  
 cggtcagatc gttgggtggag tttacttggt gccgcgcagg ggcccttagat tgggtgtcg 180  
 cgcgacgagg aagacttccg agcggtcgca acctcgaggt agacgtcagc ctatccccaa 240  
 ggcacgtcgg cccgagggca ggacctgggc tcaagccccggg tacccttggc ccctctatgg 300  
 caatgagggt 310

<210> 115  
 <211> 339  
 <212> DNA  
 <213> Hepatitis C virus

<400> 115  
 atgaggcacga atcctaaacc tcaaagaaaa accaaacgta acaccaaccc tcgcccacag 60  
 gacgtcaagt tcccggtgg cggtcagatc gttgggtggag tttacttggt gccgcgcagg 120  
 ggcccttagat tgggtgtcg 180 cgcgacgagg aagacttccg agcggtcgca acctcgaggt 240  
 agacgtcagc ctatccccaa ggcacgtcgg cccgagggca ggacctgggc tcaagccccggg 300  
 tacccttggc ccctctatgg caatgagggt tgcgggtggg cgggatggct cctgtctccc 339  
 cgtggctctc ggcctagctg gggccccaca gaccccccgg

<210> 116  
 <211> 345  
 <212> DNA  
 <213> Hepatitis C virus

<400> 116  
 tgccatcctg cacactccgg ggtgtgtccc ttgcgttcgc gagggtaacg cctcgaggtg 60  
 ttgggtggcg gtgaccccca cggtgccac cagggacggc aaactccccca caacgcagct 120  
 tcgacgtcat atcgatctgc ttgtcggag cgccacccctc tgctcgcccc tctacgtggg 180  
 ggacctgtgc gggctgtct ttcttggtgg tcaactgttt accttctctc ccaggcgcca 240  
 ctggacgacg caagactgca attgttctat ctatccccgc catataacgg gtcatcgcat 300  
 ggcattggat atgatgatga actggcccc tacggcagcg ttgg 345

<210> 117  
 <211> 276  
 <212> DNA  
 <213> Hepatitis C virus

<400> 117  
 cggcgctcgcac gcggaaaccc acgtcaccgg gggaaatgcc gcccgcacca cggctggct 60  
 tgttgtctc cttacaccag gcgccaagca gaacatccaa ctgatcaaca ccaacggcag 120  
 ttggcacatc aatagcacgg ctttgaattt caatgaaagc cttAACACCG gctggtagc 180  
 aggctcttc tatcaacaca aattcaactc ttcaggtgt cctgaggtt gggccagctg 240  
 ccgacgcctt accgattttg cccagggctg gggtcc 276

<210> 118  
 <211> 531

<212> DNA

<213> Hepatitis C virus

<400> 118

ctggggtcct atcagttatg ccaacggaag cggcctcgac gaacgcccct actgctggca 60  
ctaccctcca agaccttgcg gcattgtgcc cgcaaagagc gtgtgtggcc cggtatattg 120  
cttcaactcc agccccgtgg tggtgaaac gaccgacagg tcggcgccg ctacctacag 180  
ctggggtgca aatgatacgg atgtcttcgt ctttaacaac accaggccac cgctggcaa 240  
ttggttcgat ttttgcgg tgaactcaac tggattcacc aaagtgtgcg gagcgcccc 300  
ttgtgtcatc ggaggggtgg gcaacaacac cttgctctgc cccactgatt gttccgcaa 360  
acatccggaa gccacatact ctcgggtcgg ctccggccc ttgattacac ccagggtcat 420  
ggtcgactac ccgtataggc tttggacta tccttgtacc atcaattaca ccatattcaa 480  
agtcaaggatg tacgtgggag gggtcgagca caggctggaa gcggcctgca a 531

<210> 119

<211> 289

<212> DNA

<213> Hepatitis C virus

<400> 119

ctggcaactac cttccaagac cttgtggcat tttgtcccgca aagagcgtgt gtggcccggt 60  
atattgttc actcccgacc ccgtgggtgtt gggAACGACC gacagggtcgg ggcgcctac 120  
ctacagctgg ggtcaaatg atacggatgt cttcgccctt aacaacacca ggccaccgct 180  
ggcaattgg ttcgggtgtt cctggatgaa ctcaactgga ttccaccaaaatg tttgtccgg 240  
gcccccttgtt gtcatcgag gggtggcaaa caacaccttg ctctggccc 289

<210> 120

<211> 836

<212> DNA

<213> Hepatitis C virus

<400> 120

gcccgcgtcg ggtacatcat caacggcttg cccgtctctg cccgttaggg ccaggagata 60  
ctgtttggc cagccgacgg aatggtctcc aagggtggaa ggttgcgtgc gcccacacg 120  
gcgtacgccc agcagacgag aggctcttaa ggggtataa tcaccagcct gactgcccgg 180  
gacaaaaacc aagtggaggg tgaggtccag atcgtgtcaa ctgctaccca aacccctctg 240  
gcaacgtca tcaatgggtt atgtggact gtctaccacg ggccggaaac gaggaccatc 300  
gcatcacca agggtcctgt catccagatg tataccatg tgaccaaga cttgtggc 360  
tggcccgctc ctcaagggtc ccgtctattt acacccctgtt cctgcggctc ctcggaccc 420  
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tgcccccggg gacacgcgtt gggctattt agggccggg tttgtgcaccccg tggagtggct 600  
aaagcgggtgg actttatccc tttttttttt tttttttttt tttttttttt tttttttttt 660  
acggacaact cctctccacc agcaatgtccc cagaccccttcc agtggccca cctgcacatgt 720  
cccacccggca gcggttaagag caccaagggtc cccgtctgtt acgcacccca gggctacaag 780  
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<210> 121

<211> 475

<212> DNA

<213> Hepatitis C virus

<400> 121

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aggctcctcg ggggggtccgc tttttttttt tttttttttt tttttttttt tttttttttt 120  
cgccgggtgtgc acccggtggag tggctaaagc ggtggactttt atccctgtgg agaacctagg 180  
gacaaccatgt agatccccgg tttttttttt tttttttttt tttttttttt tttttttttt 240  
cttccaggtg gcccacacccac atgtcccccac cggcagcggt aagagcacca aggtccccggc 300

tgcgtacgca gcccagggtt acaaggtgtt ggtgctcaac ccctctgttg ctgcaacgct 360  
gggccttgggt gcttacatgt ccaaggccca tggggttgat cctaataatca ggaccggggt 420  
gagaacaatt accactggca gccccatcac gtactccacc tacggcaagt tcctt 475

<210> 122  
<211> 790  
<212> DNA  
<213> Hepatitis C virus

<400> 122  
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gggtccgcgtg ttgtgcggcccg cggacacgc cgtggcccta ttcaaggcccg cggtgtgcac 120  
ccgtggagtg gctaaagcgg tggactttat ccctgtggag aacctaggga caaccatgag 180  
atccccgggtg ttacacggaca actcctctcc accagecagtg ccccaagagct tccaggtggc 240  
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cactggcagc cccatcacgt actccaccta cggcaagttc ctggccgacg ggggtgtgc 480  
aggaggtgt tatgacataa taatttgtga cgagtgccac tccacggatg ccacatccat 540  
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cgccactgtc acccctccgg gtcctgtcac tgtgtcccat cctaacatcg aggaggttgc 660  
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ggggggaaaga catctcatct tctgccactc aaagaagaag tgcgacgagc tcgcccggaa 780  
gctggctcgca 790

<210> 123  
<211> 583  
<212> DNA  
<213> Hepatitis C virus

<400> 123  
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cacccggcagc ggtaagagca ccaagggtccc ggctgcgtac gcagcccgagg gctacaagg 120  
gttgggtgtc aaccctctg ttgtgcac gctgggttt ggtgcttaca tgtccaaggc 180  
ccatgggggtt gatcctaata tcaggacggg ggtgagaaca attaccactg gcagcccat 240  
cacgtactcc acctacggca agtctctgc cgacggcggt tgctcaggag gtgttatga 300  
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tccgggtcc gtcactgtgt cccatcctaa catcggaggat gttgctctgt ccaccaccgg 480  
agagatcccc ttttacggca aggctatccc cctcgagggtg atcaaggggg gaagacatct 540  
catcttctgc cactcaaaga agaagtgcga cgagctcgcc gcg 583

<210> 124  
<211> 617  
<212> DNA  
<213> Hepatitis C virus

<400> 124  
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ctccacggat gccacatcca tctggcat cggcaactgtc ctgcaccaag cagagactgc 120  
gggggcgaga ctgggtgtgc tcgccactgc taccctcccg ggctccgtca ctgtgtccca 180  
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tatccccctc gaggtgatca aggggggaag acatctcatc ttctgcccact caaagaagaa 300  
gtgcgacgag ctcgcgcgca agctgggtgc attggcattc aatgcctgtgg cctactaccg 360  
cggtcttgac gtgtctgtca tcccgaccag cggcgatgtt gtgcgtgtgt cgaccgatgc 420  
tctcatgact ggctttaccc gcgacttcga ctctgtgata gactgcaaca cgtgtgtcac 480  
tcagacagtc gatttcagcc ttgaccctac ctttaccatt gagacaacca cgctccccca 540  
ggatgctgtc tccaggactc aacgccccggg caggactggc agggggaaagc caggcatcta 600

tagatttgtg gcaccgg

617

<210> 125  
<211> 559  
<212> DNA  
<213> Hepatitis C virus

<400> 125  
ctccacggat gccacatcca tcttggcat cggcaactgtc cttgaccaag cagagactgc 60  
ggggcgaga ctgggtgtc tcgccactgc taccctccg ggctccgtca ctgtgtccca 120  
tcctaacatc gaggaggatg ctctgtccac caccggagag atcccccttt acggcaaggc 180  
tatccccctc gaggtatca aggggggaag acatctcatc ttctgcccact caaaagaagaa 240  
gtgcgcacgag ctgcgcgcga agctggtcgc attgggcata aatgccgtgg cctactaccg 300  
cggtcttgac gtgtctgtca tcccgaccag cgccgatgtt gtctgtgtgt cgaccgatgc 360  
tctcatgact ggctttaccg gcgacttcga ctctgtgata gactgcaaca cgtgtgtcac 420  
tcagacagtc gatttcagcc ttgaccctac ctttaccatt gagacaacca cgctccccca 480  
ggatgtgtc tccaggactc aacgcgggg caggactggc agggggaaagc caggcatcta 540  
tagatttgtg gcaccgggg 559

<210> 126  
<211> 475  
<212> DNA  
<213> Hepatitis C virus

<400> 126  
tgtgatagac tgcaacacgt gtgtcaactca gacagtcgtt ttcagccttg accctacctt 60  
taccatttag acaaccacgc tccccccagga tgctgtctcc agactcaac gcccggggcag 120  
gactggcagg gggaaaggccag gcatctatag atttggca cccgggggagc gccccctccgg 180  
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gtgccaggac catcttgaat tttggggaggg cgtcttacg ggcttcactc atatacatgc 360  
ccactttta tcccagacaa agcagagtgg ggagaacttt ccttacctgg tagcgtacca 420  
agccaccgtg tgctgcttaggg ctcaagcccc tccccatcg tggaccaga tgtgg 475

<210> 127  
<211> 390  
<212> DNA  
<213> Hepatitis C virus

<400> 127  
tagatttgtg gcaccggggg agcgcggccctc cggcatgttc gactcggtccg tcctctgtga 60  
gtgtatgac gggggctgtg ctgggtatga gtcacgccc gccgagacta cagttaggct 120  
acgagcgtac atgaacaccc cggggcttcc cgtgtccag gaccatctt aattttggga 180  
gggggtctt acgggcctca ctatataga tgcccaactt ttatcccaaga caaagcagag 240  
tggggagaac ttcccttacc tggtagcgtt ccaagccacc gtgtgcgtta gggctcaagc 300  
ccctccccca tcgtgggacc agatgtggaa gtgtttgatc cgcccttaaac ccaccctcca 360  
tgggccaaca cccctgtat acagactggg 390

<210> 128  
<211> 155  
<212> DNA  
<213> Hepatitis C virus

<400> 128  
acgagcacct gggtgctcggt tggcgccgtc ctggctgtc tggccgcgtt ttgcctgtca 60  
acaggcgtcg tggtcataatg gggcaggatc gtcttgcgtt ggaagccggc aattataacct 120  
gacagggagg ttctctacca ggagttcgat gagat 155

<210> 129  
<211> 56  
<212> DNA  
<213> Hepatitis C virus

<400> 129  
ggctgctctg gccgcgtatt gcctgtcaac aggctgcgtg gtcatagtgg gcagga 56

<210> 130  
<211> 625  
<212> DNA  
<213> Hepatitis C virus

<400> 130  
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tggccttagct ggccgcgcac tcggcagcgt tggactgggg aaggtcctcg tggacattct 180  
tgcagggtat ggccgcggcg tggcggggagc tctttagca ttcaagatca tgagcggta 240  
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agtcaatgg atgaaccggc taatagcctt cgcctcccg gggaaaccatg ttccccccac 420  
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tgtaaccaggc ctccctgagggc gactgcataca gtggataagc tcggagtgtt 540  
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gacctggctg aaagccaagc tcatg 625

<210> 131  
<211> 623  
<212> DNA  
<213> Hepatitis C virus

<400> 131  
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caagatcatg agcgggtgagg tccccctccac ggaggacctg gtcataatctgc tgccgcacat 180  
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gaaccatgtt tccccccacgc actacgtgcc ggagagcgat gcagccgcgc gctactgc 360  
cataactcgcg agcctctactg taatcccgat cctggggcgat ctgcataatgc ggataagctc 420  
ggagtgtacc actccatgtt ccgggttcctg gctaaggggac atctgggact ggatatgcga 480  
gggtgtggc gactttaaga cctggctgaa agccaaatgc atgcacacaac tgcctggat 540  
tcccttgcgtg tcctgcacgc gccggatatag gggggcttgg cgaggagacg gcattatgc 600  
cactcgctgc cactgtggag ctg 623

<210> 132  
<211> 678  
<212> DNA  
<213> Hepatitis C virus

<400> 132  
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gatcatgagc ggtgagggtcc cctccacggc ggacctggtc aatctgtgc cccatccct 120  
ctcgccctggc gcccattgttgc tcgggtgttgc ctgcgcagca atactgcgc ggcacgttgg 180  
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ccatgtttcc cccacgcact acgtgccga gaggcgatgc gccgcggcg tcactgcac 300  
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gtgtaccact ccatgctccg gttcctggct aaggacatc tggactgga tatgcaggt 420  
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tcgctgccac tgtggactg agatcaactgg acatgtaaa aacgggacga tgaggatcg 600  
cggtcctagg acctgcagga acatgtggag tggacgttc cccattaacg cctacaccac 660  
ggcccccgt actccccct 678

<210> 133  
<211> 436  
<212> DNA  
<213> Hepatitis C virus

<400> 133  
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ggcccccctcc acggaggacc tggtaatct gctcccccc atcctctcg cttggagccct 120  
tgtatcggt gtggctcg cagaataact gcgcgcgcac gttggcccg gcgaggggc 180  
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gcactacgtg cccggagagcg atgcagccgc cccgcgtact gccatactca gcagcctcac 300  
tgtaacccag ctcctgaggg gactgcatca gtggataagc tcggagtgtt ccactccatg 360  
ctccggttcc tggctaaggg acatctggga ctggatatgc gaggtgtga gcgactttaa 420  
gacctggctg aaagcc 436

<210> 134  
<211> 164  
<212> DNA  
<213> Hepatitis C virus

<400> 134  
agcccttgta gtcgggtgtgg tctgcgcagc aataactgcgc cggcacgtt gcccgggcga 60  
ggggcagtg caatggatga accggctaat agccttcgc tcccgggggga accatgtttc 120  
ccccacgcac tacgtgcggc agagcgatgc agccgccccgc gtca 164

<210> 135  
<211> 496  
<212> DNA  
<213> Hepatitis C virus

<400> 135  
cgccctcccg gggAACATG tttccccccac gcactacgtg cccggagagcg atgcagccgc 60  
ccgcgtcact gccatactca gcgcctcac tgtaacccag ctccctgaggg gactgcatca 120  
gtggataagc tcggagtgtt ccactccatg ctccgggtcc tggctaaggg acatctggga 180  
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gacgatgagg atcgtgcgtc cttaggacctg caggaacatg tggagtggga cgttccccat 420  
taacgcctac accacggggcc cctgtactcc cttccctgcg cccaaactata agttcgcgct 480  
gtggagggtg tctgca 496

<210> 136  
<211> 926  
<212> DNA  
<213> Hepatitis C virus

<400> 136  
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gtttccctggc taagggacat ctgggactgg atatgcgagg tgctgagcga ctttaagacc 180

tggctgaaag ccaagctcat gccacaactg cctggattc ctttgtgc ctgcacgc 240  
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gagatcaactg gacatgtcaa aaacgggacg atgaggatcg tcggcttag gacgtgcagg 360  
aacatgtgga gtggacgtt cccattaaac gcctacacca cggccccctg tactcccc 420  
cctgcgccga actataagtt cgctgtgg aggtgtctg cagaggaata cgtggagata 480  
aggcgggtgg gggacttcca ctacgtatcg ggtatgacta ctgacaatct taaatgccc 540  
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tcaccccccctt ctatggccag ctccctcggt agccagctgt ccgctccatc tctcaaggca 840  
acttgcacccg ccaaccatga ctccccgtac gccgagctca tagaggctaa ctcctgtgg 900  
aggcaggaga tggcggcaa catcac 926

<210> 137

<211> 850

<212> DNA

<213> Hepatitis C virus

<400> 137

actcagcagc ctcactgtaa cccagctcct gaggcgactg catagtggta taagctcgga 60  
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gctgagcgcac tttaagacct ggctgaaagc caagctcatg ccacaactgc ctggattcc 180  
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gagaagggtt gcgagagggtt ccccccctt tatggccagc tcctcggtca gccagctgtc 780  
cgctccatct ctcaaggcaa ctgcacccgc caaccatgac tccctgtacg ccgagctcat 840  
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<210> 138

<211> 749

<212> DNA

<213> Hepatitis C virus

<400> 138

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cgactttaag acctggctga aagccaagct catgccacaa ctgcctggta ttccctttgt 180  
gtcctgcccag cgccggata ggggggtctg gcgaggagac ggcattatgc acactcgctg 240  
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aggactccac gatgtcccg tggggtcga attaccttgc gagcccgaa cggacgttagc 660  
cgtgttgcacg tccatgtca ctgcataccctt ccatataaca gcagaggcgg ccgggagaag 720  
gttggcggaga gggtcacccctt ctcttatgg 749

<210> 139

<211> 257

<212> DNA  
<213> Hepatitis C virus

<400> 139  
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agctgagatc actggacatg tcaaaaacgg gacgatgagg atcgctggtc cttaggacctg 180  
caggaacatg tggagtggga cgttccccat taacgcctac accacgggcc cctgtactcc 240  
ccttcctgctt ccgaact 257

<210> 140  
<211> 285  
<212> DNA  
<213> Hepatitis C virus

<400> 140  
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gaacatgtgg agtgggacgt tccccattaa cgcctacacc acggggccct gtactcccct 120  
tcctcgcccg aactataagt tcgcgtgtg gagggtgtct gcagaggaat acgtggagat 180  
aaggcgggtg ggggacttcc actacgtatc gggtatgact actgacaatc tttaatgccc 240  
gtgcagatc ccatcgcccg aattttcac agaattggac ggggt 285

<210> 141  
<211> 228  
<212> DNA  
<213> Hepatitis C virus

<400> 141  
catagaggct aacctccctgt ggagggcagga gatggggggc aacatcacca gggttgagtc 60  
agagaacaaa gtgggtattc tggactcctt cgatccgctt gtggcagagg agatgagcgt 120  
ggaggtctcc gtacctgcag aaattctgcg gaagtctcgg agattcgcgg gggccctgccc 180  
cgtctggcggc cggccggact acaacccccc gctagtagag acgtggaa 228

<210> 142  
<211> 273  
<212> DNA  
<213> Hepatitis C virus

<400> 142  
ccatggctgc ccgctaccac ctccacggtc ccctccgtg cctccgcctc ggaaaaagcg 60  
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ttttggcggc tcctcaacctt cggcattac gggcacaat acgacaacat cctctgagcc 180  
ccccccttcc ggctgcccccc cggactcccgta cggtgagtc tattcttcca tgccccccct 240  
ggagggggag cctggggatc cggatctcag cga 273

<210> 143  
<211> 412  
<212> DNA  
<213> Hepatitis C virus

<400> 143  
ttcctggaca ggcgcactcg tcacccctgt cgctgcggaa gaacaaaaac tgcccatcaa 60  
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tgcttgccaa aggcagaaga aagtccatc tgacagactg caagttctgg acagccatta 180  
ccagggacgtg ctcaaggagg tcaaaaggcggc ggcgtcaaaa gtgaaggcta acttgcatac 240  
cgttagaggaa gcttgcagcc tgacgcccccc acattcagcc aaatccaatg ttggctatgg 300  
ggcaaaagac gtccgttgcc atgccagaaa ggccgttagcc cacatcaact ccgtgtggaa 360

agaccttctg gaagacagtg taacaccaat agacactacc atcatggcca ag

412

<210> 144

<211> 903

<212> DNA

<213> Hepatitis C virus

<400> 144

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caactccgtg tggaaagacc ttctggaaga cagttaaca coaatagaca ctaccatcat 180  
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gcgggttcaa ttccctcggtc aagcgtggaa gtccaaagaag accccgtgg ggttctcgta 420  
tgataccgcg tggggact ccacagtac tgagagcgac atccgtacgg aggaggcaat 480  
ttaccaatgt tggacctgg acccccaagc cccggtggcc atcaagtccc tcactgagag 540  
gttttatgtt gggggccctc ttaccaattc aaggggggaa aactgcggct accgcagggt 600  
ccgcgcgac ggcgtactga caactagtg tgtaaacc ctcacttgc acatcaaggc 660  
ccggcgccgc tggcggccg cagggtccca ggactgcacc atgctcgtgt gtggcgcacga 720  
cttagtcgtt atctgtaaa gtgcgggggt ccaggaggac gggcgagcc tgagaggctt 780  
cacggaggct atgaccaggat actccggccc ccccggggac ccccccacaac cagaatacga 840  
cttggagctt ataacatcat gtcctccaa cgtgtcagtc gcccacgacg ggcgtggaaa 900  
gag 903

<210> 145

<211> 600

<212> DNA

<213> Hepatitis C virus

<400> 145

agaggaagct tgcagcctga cgcccccaca ttcaagccaaa tccaagtttg gctatggggc 60  
aaaagacgtc cggtgcctatg ccagaaaggc cgtagcccac atcaactccg tggaaaga 120  
ccttctggaa gacagttaa caccaataga cactaccatc atggccaaga acgagggttt 180  
ctgcgttcag cctgagaagg ggggtcgtaa gccagctcgt ctcatcgtgt tcccccac 240  
ggcgtgcgc gtgtgcgaga agatggccct gtacgacgtg gttagcaagc tcccccctggc 300  
cgtatggga agtcctacg gattccata ctcaccagga cagcgggttg aattcctcgt 360  
gcaagcgtgg aagtccaaaga agaccccgat ggggttctcg tatgataacc gctgtttga 420  
ctccacagtc actgagagcg acatccgtac ggaggaggca atttaccaat gttgtgaccc 480  
ggaccccaa gcccgcgtgg ccatcaagtc ctcactgag aggtttatg ttggggcc 540  
tcttaccaat tcaagggggg aaaactgcgg ctaccgcagg tgccgcgcga gcccgtact 600

<210> 146

<211> 781

<212> DNA

<213> Hepatitis C virus

<400> 146

ccttctggaa gacagttaa caccaataga cactaccatc atggccaaga acgagggttt 60  
ctgcgttcag cctgagaagg ggggtcgtaa gccagctcgt ctcatcgtgt tcccccac 120  
ggcgtgcgc gtgtgcgaga agatggccct gtacgacgtg gttagcaagc tcccccctggc 180  
cgtatggga agtcctacg gattccata ctcaccagga cagcgggttg aattcctcgt 240  
gcaagcgtgg aagtccaaaga agaccccgat ggggttctcg tatgataacc gctgtttga 300  
ctccacagtc actgagagcg acatccgtac ggaggaggca atttaccaat gttgtgaccc 360  
ggaccccaa gcccgcgtgg ccatcaagtc ctcactgag aggtttatg ttggggcc 420  
tcttaccaat tcaagggggg aaaactgcgg ctaccgcagg tgccgcgcga gcccgtact 480  
gacaactacg tggtaaca ccctcacttg ctacatcaag gcccggcagc ctcgtcgac 540  
cgcagggttc caggactgca ccatgctcgt gtgtggcgac gacttagtcg ttatctgtga 600

aagtgcgggg gtccaggagg acgcggcgag cctgagagcc ttcacggagg ctatgaccag 660  
gtactccgccc cccccccggg accccccaca accagaatac gacttggagc ttataacatc 720  
atgcctcc aacgtgtcag tcgcccacga cggcgctgga aagagggtct actaccttac 780  
c 781

<210> 147  
<211> 382  
<212> DNA  
<213> Hepatitis C virus

<400> 147  
cgttatctgt gaaaagtgcgg gggtccagga ggacgcggcg agcctgagag ctttacgga 60  
ggctatgacc aggtactccg cccccccggg ggacccccc caaccagaat acgacttgg 120  
gtttataaca tcatgctct ccaacgtgtc agtcgcccac gacggcgctg gaaagagggt 180  
ctactaccc acccgtgacc ctacaacccc cctcgcgaga gccgcgtggg agacagcaag 240  
acacactcca gtcaattctt ggttaggcaa cataatcatg tttgcggccca cactgtggc 300  
gaggatgata ctgatgaccc atttctttag cgtcctcata gccagggtac agcttgaaca 360  
ggctttaac tgtgagatct ac 382

<210> 148  
<211> 268  
<212> DNA  
<213> Hepatitis C virus

<400> 148  
cgtgtcagtc gcccacgacg ggcgtggaaa gagggtctac taccttaccc gtgaccctac 60  
aaccccccctc gcgagagccg cgtgggagac agcaagacac actccagtca attccctggct 120  
aggcaacata atcatgtttg ccccccacact gtgggcgagg atgatactga tgaccat 180  
ctttagcgtc ctcatagcca gggatcagct tgaacaggct cttaaactgtg agatctacgg 240  
agcctgctac tccatagaac cactggat 268

<210> 149  
<211> 222  
<212> DNA  
<213> Hepatitis C virus

<400> 149  
actccatggc ctcagcgtcat tttcactcca cagttactct ccaggtgaaa tcaatagggt 60  
ggccgcgtgc ctcagaaaaac ttggggtccc gccccttgcga gcttggagac accggggccg 120  
gagcgtccgc gctaggcttc tgtccagagg aggcagggt gccatatgtg gcaagtacct 180  
ttcaactgg gcagtaagaa caaagctcaa actcactcca at 222

<210> 150  
<211> 192  
<212> DNA  
<213> Hepatitis C virus

<400> 150  
ctctccaggt gaaatcaata gggtgccgc atgcctcaga aaacttgggg tccccccctt 60  
gcgagcttgg agacaccggg cccggagcgt ccgcgtcttgcga gggaggcag 120  
ggctgccata tgtggcaagt acctcttcaa ctggcagta agaacaacgc tcaaactcac 180  
tccaatagcg gc 192

<210> 151  
<211> 10  
<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: linker sequence

<400> 151

gggccacgaa

10

<210> 152

<211> 13

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: linker sequence

<400> 152

ttcgtggccc ctg

13

<210> 153

<211> 138

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: pP6 vector sequence

<400> 153

ctagccatgg ccgcaggggc cgccggccgca ctatgtggga tccttaatta aaggggccact 60  
ggggcccccc gtaccggcggt ccccgccgccc ggcgtgatca ccccttaggaa ttaatttccc 120  
ggtgaccccg ggggagct

138

<210> 154

<211> 128

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: pB5 vector sequence

<400> 154

catggccgca ggggcccggcgg ccgcactagt ggggatcctt aattaaaggg ccactggggc 60  
ccccccggcggt ccccgccgccc ggcgtgatca ccccttaggaa ttaatttccc ggtgaccccg 120  
ggggagct

128

<210> 155

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: primer

<400> 155  
gcgttggaa tcactacagg

20

<210> 156  
<211> 19  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: primer

<400> 156  
cacatgcac gttgaagtg

19

1